



THE
SIXTH
LACUS
FORUM
1979



**THE SIXTH
LACUS FORUM
1979**

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THE SIXTH LACUS FORUM 1979

edited by William C. McCormack
and Herbert J. Izzo



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INTRODUCTION: LINGUISTICS AND PRAGMATICS

Continuing the policy of alternating annual meeting places between Canada and the United States, the Sixth Forum of the Linguistic Association of Canada and the United States was held at the University of Calgary in Calgary, Alberta, from August 24 to August 28, 1979. As the previous Canadian meeting site, Montreal, was the easternmost locale for LACUS gatherings on the North American continent, so Calgary was the westernmost to date. Despite Calgary's considerable distance from the Great Lakes center of gravity of LACUS, many more papers were proposed for the program than could be included in it, and the meeting was attended by over a hundred persons.

As E. Pulgram exemplified in his presidential address, "Pulgram's Progress", the LACUS tradition is one of investigating language in all its aspects and from all points of view, without limitation to any single theoretical approach. Such a tradition, of course, poses editorial as well as intellectual challenge. In the end, the bulk of the papers heard at the Sixth Forum appear in the present yearbook in topically organized chapters, duly headed in two cases with the Inaugural Lecture by R. A. Hall, Jr., and an Invited Lecture by E. G. Lytle.

The modern trend towards broadening the scope of linguistic inquiry, often accomplished best by attention to pragmatic concerns and an infusion of several disciplinary perspectives into the scientific interpretation of language, was recognized by Adam Makkai five years ago when he introduced the first LACUS yearbook with an answer to the question "Why LACUS?" Makkai noted then that, "The founding of LACUS and the purport of most of the Forum papers are evidence of the phenomenon I wish to call The Passing of the Syntactic Age, and the dawning of The Pragmatic and Ecological Age in linguistics." That phenomenon receives all the more emphasis here, not just by the presence of the papers expanding horizons in linguistic theory, but also in a much enhanced scope of attention to speech act and discourse analysis, plus a first-time presentation, to the LACUS audience, of junction grammar. The latter, a new functional approach to the analysis of language, is striking for the pragmatism which informs both its theory and its practice.

An innovation in the format of LACUS annual meetings occurred this year in the form of a scheduled evening of open discussion within contexts of "poster sessions" and a "workshop". The poster sessions, for which any interested person could propose a topic to be discussed with all comers at a particular place and time, ended by consolidating under the sponsorship of a group of stratificationists. Meantime, a workshop on the educational applications of discourse analysis, proposed by McCormack and then pre-planned together with John Regan, who chaired it, attracted some twenty participants from the three disciplines of linguistics, education, and anthropology. Perhaps because of the interdisciplinary nature of the group, discussion moved from individual presentations of methodological problems to the philosophical issue of pragmatic interpretation of social acts — including speech acts — and of normative science, i.e., whether and how scientific interpretative models should be presented to educators as wisdom.

Financial and other support from various sources contributed greatly to the success of the Sixth LACUS Forum. We are grateful to the Social Sciences and Humanities Research Council of Canada for its continued subsidization of the Canadian meetings of LACUS, and employed their 1979 grant to make possible the attendance of three principal speakers from abroad and to partially subsidize the transportation of the majority of Canadian presenters. We are grateful too to The

University of Calgary, whose University Research Policy and Grants Committee provided a conference grant, whose Faculty of Social Sciences under Dean H. K. Betz provided additional financial support, whose Departments of Linguistics and Anthropology provided nominal hosting, and whose Vice-President (Academic), Dr. P. J. Krueger, extended to the LACUS visitors an official welcome to the university. Finally, we are specially indebted to Anna Pikelis McCormack, whose expert editorial assistance and free gift of her time constitute a major contribution to the publication of this LACUS yearbook.

Calgary, Alberta
8 March, 1980

W. C. McCormack
H. J. Izzo

1979 PRESIDENTIAL ADDRESS

PULGRAM'S PROGRESS

Ernst Pulgram

The University of Michigan

Although my title sounds threateningly autobiographical, I am not about to offer you an account, not even in Bunyanesque allegory, of my journey through four decades of linguistic study. John Bunyan's pilgrim, who moved through Life on his way to Bliss, provides little more than the pun, for in my own progress I never rose above Worldliness. And even if I have traversed, more than once, a place akin to the pilgrim's Slough of Despond, I do not flatter myself that I have climbed to the summit of his Delectable Mountains whence opens the Road toward the Celestial City, Celestial cities are likely to lie at paradisiacal distances, and I may never get there.

I propose to speak to you in an appropriate post-prandial vein (I may not amuse you, but I am under no obligation to bore you) of a few things that I have learned and that seem worth recounting—if for no other reasons, then at least because they do not all of them match past or present orthodoxies. Whatever opinions I now hold I have not formed lightly, hence I shall be forgiven, I trust, if I hold them strongly—though I cherish the right to change my mind, but, again, not lightly.

Lord Acton, whose full name was John Emerich Edward Dalberg-Acton, and who lived from 1834 to 1902, reckoned that the average period of dominance of a philosophy or scholarly doctrine is about twenty years. This estimate fits linguistics rather well. If one sets the heyday of the neogrammarians around 1880, Saussure's lectures in Geneva, which did not extinguish neogrammarianism but merely added to it a synchronic and theoretical foundation, took place some twenty years later, in the early 1900's (though the *Cours de linguistique générale* was published from the notes of his students only in 1916); adding another score of years, one comes upon Sapir and Bloomfield in the 1920's, with Bloomfield's *Language* of 1933 drawing a summary and steering the course of American structuralism, while at the same time the Prague School was preeminent in most of Europe; the Second World War disturbed the pace since most linguists were engaged, if they were not in combat or among the occupation troops, in practical tasks rather than theoretical research, and it was not until 1957, with the publication of Chomsky's *Syntactic Structures*, that a new movement gained ground. Since then, twenty years have passed: if we believe Lord Acton, the time for something new has arrived—and indeed, as you know, there is a restlessness in the land, with many transformational and post-transformational factions clamoring for attention and proposing new methods and new results.

Consider, for example, the program of the Conference on Current Approaches to Syntax, held in March 1979 at the University of Wisconsin in Milwaukee. The following different "grammars" were discussed (I shall not cite the names of the chief proponents and reporters), each in a separate session: Relational grammar; Role and reference grammar; Functional grammar; Cognitive grammar; Equational grammar; Functionally interpreted base-generated grammar; Corepresentational grammar; Daughter-dependency grammar; Montague grammar; Stratificational grammar. In three others the word "grammar" no doubt belongs in the deep structure but got deleted on the way to the surface: Epiphenomenal syntax; Trace

theory; and, as an old-timer in this racy company, Tagmemics. Elsewhere I found Systemic grammar and Paraphrase grammar. And the other night we heard about Junction grammar, and the question was asked at another meeting whether a Unified functionalist grammar was possible. That makes seventeen "grammars"—and others are probably *in ouo*, some perhaps already *ex ouo* but undiscovered by me. A healthy divergence of opinion is of course to be welcomed; yet one must wonder if such a turbulent balkanization is a symptom of health or of illness. Now the remarkable aspect of this array, competitive more than complementary in its parts, is the absence of just plain Transformational-generative grammar in any of its major revelations: Standard theory (of 1965), Extended standard theory (of 1970, 1971), and Revised extended standard theory (of 1975). Adherents of these old faiths are dismayed and sound the alarm: linguistics, they fret, is in a vulnerable "postrevolutionary" phase, its rationalism is threatened by those who pander to that old devil empiricism; but since empiricists are oppressive and rationalists are liberal, it behooves the "revolutionary old guard" to stand its ground against the "counter-revolutionaries."¹ Have we perchance reached the hour of a *Götterdämmerung*? Shall we be importuned to acclaim the rise of a new deity—a Zeus who dethrones his father before being devoured by that inexorable parent, Time, or possibly an Aphrodite born of the foam, not at Cyprus but in San Francisco Bay, or the Charles River Basin?

My own education in linguistics spans all three of the greater currents of linguistic theory: the neogrammarian persuasion, which was still in sway during my student days in Vienna in the 1930's, relatively little influenced by Saussurian and Praguian (let alone American) structuralism, except for the presence of Trubetzkoy and Karl Bühler at the University of Vienna; then, after my arrival in the United States, American structuralism especially of the Bloomfieldian and post-Bloomfieldian variety, but with a healthy European admixture provided by Jakobson and Martinet; and finally transformation grammar down to the neo-transformational sects I just mentioned. I have learned from, and have used, all, but I did not, by design and by temperament, sell my soul to any one, and I worshiped at no altar. Perhaps this is so because my way of linguistic research, as most of my writings show, is what in the study of law is called the case-book approach. The problems I have dealt with arose from one or another language, with their solutions leading toward, or being embedded in, general theory. It was not my principal goal to erect a theoretical structure and then to find bits and pieces of evidence to sustain it; after all, if one rummages diligently enough among the few thousand idioms at one's disposal, one can always find in one of them that item which proves one's point—and one need not even bother to learn the whole language. Now some may say that this really makes me a philologist; I prefer to think of myself as a philologist linguist, which I think is a recommendable junction.

The author of a work on schools and scholars in Romance linguistics characterized my activity thus: "Pulgram is one of those Romance scholars who do not fit easily into any of the categories I have described, as his interests range over early Roman history, dialectology, and the phonology, especially of French . . . as well as methodology and applied linguistics."² If I do not thus fit, I am nonetheless where I want to be. Indeed the author could have added that I am not really an unadulterated Romanist: since I do not know how to determine exactly where "Latin" ends and "Romance" begins, except on the basis of arbitrarily, even if more or less relevantly, selected criteria (among which the appearance of the first Romance texts

¹So in Bever — Katz — Langendoen 1977, 12-13.

²Jordan — Orr — Posner 1970, 536.

in the ninth century is the most arbitrary and the least relevant), I had to be a Latinist; and this could not but lead me to a study of the pre-Latin speeches of Italy. All of this had to be supported by a more than superficial study of archaeology and history, on the view that people's non-linguistic mores are not without influence upon their linguistic manners. This, I suppose, makes me a sociolinguist—but then I believe that all linguistics is inevitably socio-linguistics, though the dosage of sociology and history may vary in the treatment of various problems. Let me be praised for this catholicity or reproached for spreading myself too thin; but, to paraphrase a dictum of Terence: *Linguista sum, nihil linguistici a me alienum puto* 'I am a linguist, and nothing having to do with language is alien to me.' I took Goethe's advice (if you permit me another quotation): *Willst du ins Unendliche schreiten, /geh' nur im Endlichen nach allen Seiten* 'If you wish to stride into the infinite, just walk in all directions within the finite.'

I have never attached great importance to declaring myself either a descriptivist or a historian of language. Every language is in constant movement, as is indeed, we are told, the whole universe. Heraclitus was right 2500 years ago: *Πάντα ρεῖ* 'Everything flows.' But the modern natural scientist is also right when he describes the things of concern to him as if they were immutable, although of course he knows that *sub specie aeternitatis*, on the scale of eternity, they are not. Human behavior, on the other hand, including human language, does change *sub specie humanitatis*, on the scale of mankind, and changes are traceable in the records of the past six millennia; they are indeed observable in a single lifetime. Describing a language is therefore like taking a snapshot of someone jumping off a diving board into a swimming pool: though the diver can be captured in midair on a photograph, he is coming from somewhere and has no choice but to go somewhere, mostly down; the picture does not prove that a body can remain suspended in the air. So also the description of a language is a snapshot of something irresistibly in motion. Saying this I do of course not deny the necessity and usefulness of a synchronic description, any more than I want to abolish snapshots. In fact the synchronic statement is needed, if for no other purpose, then because it constitutes the set of rules called the structure, or the grammar, of a language—although it will not be amiss to point out the degree of unnaturalness in the product.

The more firmly a language is anchored in a standard grammar, and the more a society is willing, or feels compelled, to follow a codified model of linguistic behavior, the less room there is for the penetration of changes; conversely, a spoken dialect of smaller social prestige will be more hospitable to change and therefore less easily describable in a rigidly circumscribed system that has no fuzzy edges. Many structuralists felt obliged, since they wished linguistics to be scientific, to fabricate descriptions representing a language as a totally neat system, like that of physics, or astronomy, where lack of regularity and of predictability does not reside in the subject: if a falling body or a launched projectile does not follow the course calculated, if a lunar eclipse does not occur as predicted, the fault lies not with nature but with the scientist. But the linguist can hardly ever point to a 100% regularity in his subject, and prediction, to the extent that it is feasible, must remain without **foreseeable** date at best. If he nonetheless prefers to state matters linguistic in the uncompromising terms of natural science, he is driven to Procrustean operations on the corpus; lopping off such features as can no longer, or not yet, be accommodated in an utterly tidy structure, he performs amputations that, with disconcerting frequency, metamorphose the corpus into a corpse. Yet even if language is not as orderly a system as, say, organic chemistry, its description does not lack scientificness if it lays bare, as it must, these irregularities due to change in progress. To a degree, then,

diachrony has to have a place in synchrony. In fact, it was recently noted that "diachronic factors enter at a number of levels and often in a complex way, as an integral and at least equal partner with synchronic factors, in the over-all explanatory-theoretic structure of linguistic science."³ Well said—but it's a pity that some linguists will believe this to be an observation which was never before made and never before heeded. Of course it was, many times.

Interest in historical linguistics is now on the rise, at least in part because the strict separation of synchrony and diachrony has proven unsatisfying. Unsatisfying, I think, because synchrony alone showed little explanatory power. To be sure, the question is what kind of enlightenment one requires of an explanation. I shall not now attempt a definition of, or a lengthy disquisition on, "explanation." But I shall, as is my custom, present a case to you.

Let us look at the famous sentence *Flying planes can be dangerous*, which is ambiguous. (I want to insert here that many utterances are ambiguous. If they nonetheless successfully serve communication, it is because they all occur in a context, linguistic or situational or, most frequently, both. Only the linguist cites sentences in isolation, with at times befuddling or distorting consequences. But homophony is not a crippling defect, whether of words like *red/read*, *symbol/cymbal*, or of phrases and entire sentences like the one about the *flying planes*, or that remarkable Italian one *l'ho visto uccidere* which can mean both 'I saw him kill' and 'I saw him getting killed'.) Now as for *flying planes*, the ambiguity can be stated in various synchronic ways, and it can be disambiguated by recourse to different devices, say, immediate constituent analysis, item-and-process analysis, or, as is common nowadays, by the notion that somewhere in the speaker's and the hearer's mind lie divergent deep structures. These are all legitimate schemes, severally born of the games the linguist chooses to play. But the explanation one receives from them is about the methods of the analysis more than about a language and linguistic behavior, there not being the slightest evidence that anything corresponding to the linguist's analytic procedure exists or happens in the speaker or the hearer. Should not the linguist illuminate, not just his theory (interesting though such a metatheory is), but the language, the performance, the surface—or whatever one likes to call it? Concerning the surface I read that "it is now generally accepted that the surface form of a sentence can influence the meaning in subtle ways,"⁴ and that "a considerable amount of quite fruitful research of the past few years . . . has shown that many aspects of semantic interpretation are best expressed in terms of properties of surface structure."⁵ For some two decades the surface had been set aside as uninteresting, or trivial, or non-explanatory; now it is, not just rediscovered in the literature where it has been accessible for a century and more, but unnecessarily and redundantly re-invented and proudly proclaimed a precious product of pragmatics.

Let me now propose the addition of a diachronic dimension to the bald synchronic statement of whatever type or theory, even if I run the risk of being accused of "mixing levels". I should then affirm that the culprit in the *flying planes* sentence is *can*, one of the modal verbs of English that do not mark the third person singular of the present tense with the morpheme *-s*. This is so because these modals are originally past tense forms, which neither in earlier English nor in Modern Standard English have the suffixed *-s*. If *can* did not behave like a modal, no ambiguity would appear: *Flying planes can be dangerous*, where the grammatical subject is *planes*, and

³Greenberg 1979, 279.

⁴Langacker — Munro 1975, 818 fn. 36.

⁵Chomsky 1976, 116.

*Flying planes *cans be dangerous*, where the subject is *flying*. (The same result is of course achieved by leaving out *can*: *Flying planes are dangerous* and *Flying planes is dangerous*.) No historical linguist would be astonished if the modals as a class had given up their peculiarity and had, especially since they are such a small minority among verbs, sprouted an -s in analogy of the more numerous non-modal class. (There was a time, not long ago, by the way, when the term "analogy" was anathematized in historical linguistics. It was honorably reconsecrated after a while, by the same scholar, if I am not mistaken. The disciples dutifully and devoutly genuflected at both solemnities.) Perhaps, however, the time for **cans* has passed since the current trend is in the opposite direction, namely, the omission (the deletion, if you insist) of the third person singular present tense -s, partly, at least, because in conjunction with the obligatory subject pronoun a person marker in the verb is redundant. What is more, this -s is the only person marker Modern English still has, outside of the verbs *to be* and *to have*, hence eminently vulnerable also on statistical grounds. (Some dialects, however, attach a profusion of -s's where they do not belong: *I says, you knows, we laughs*, side by side with *I is, you is, we does* etc.; but such reactions born of analogy and hypercorrection are to be expected.) Final -s may stubbornly cling to life as long as Standard English remains a dialect of high prestige and the model of good linguistic manners. How long that will be depends on extra-linguistic conditions in the society.

A linguist of the transformationist-generative school will assign final -s to the "underlying" form of modal verbs, and delete it on the surface. There is nothing wrong with that in the context of transformation-generative grammar, but it has nothing to do with the history of English, or with what the speaker thinks or knows or does. I cannot agree that such an analysis is somehow "deeper" than another, even if it does operate with something called "deep" structure. True enough, sometimes an historical underlying form is matched by the linguist's underlaid one (and I do distinguish underlaid from underlying advisedly). But whenever that happens I have the uncomfortable feeling that there has been a bit of cribbing from historical grammar, a bit of cheating. For the generative historical process by itself, on its own strength, can lead and often has led to several equally admissible underlaid forms, though one of them may be ultimately preferable because it serves best the larger design pursued by the linguist. But nothing in the nature of generative reconstruction guides the linguist toward, or dictates a preference for, the actual historical underlying form, be it phoneme or morpheme or lexical etymon.

If I wanted to broaden and deepen the explanation of the case of the *flying planes*, I might go on to mention that *flying* represents the homophonous result of the conflation, peculiar to English, of present participle and gerund. The present participle functions adjectivally (*a flying plane*), and the gerund either verbally and has an object (*a pilot flying a plane*) or nominally and has an attribute (*the flying of planes*); the last phrase, however, is once more ambiguous outside a context because the verb *to fly* can be both transitive, as in *the flying of planes is the job of the pilot*, and intransitive, as in *the flying of planes disturbs one's sleep*. It may even be worth noting that transitive *to fly* has recently developed a new weak past beside *he flew*, as in the baseball expression *he flied to the left outfield*. Last but not least, the English forms and functions can be profitably compared with those in other Germanic and Indo-European languages (by relating them, for example, to the German participle and gerund, to the Latin adjectival or verbal participle and the nominal gerund, and to the Romance adjectival participle and verbal gerund).

With all my liking for the case-book approach, I of course neither condemn nor condemn the text-book, that is, if I may continue the simile from law, the

formulation of general rules and larger theories. But if a given theory does not explain what needs to be explained, I am ready to turn to another. In linguistics, it is not usually true that one must choose between philosophies as discrepant as Newtonism and Einsteinism, as evolutionism and creationism, even though some of us seem to cleave to their prophets and orthodoxies with religious fervor and intolerance. Whether an explanation rests upon the tenets of mentalist or behaviorist psychology, whether it exhibits a categorical attachment to empiricist or rationalist philosophy, and especially whether it is immaculately synchronic or diachronic, is not my primary concern, especially since, as I believe, each of these dialectics fails when it excludes and execrates its declared opposite. And I do wish to submit to you that my discussion of *flying planes*, and most particularly the attention to diachronic and comparative data, explains a lot more about the English language, about language in general, and about the speaker—his mind, if you wish—than the constituent analyses, the trees, and the underlaid structures if offered by themselves. In short, I believe that a very good way of explaining a thing is to tell how (and, if possible, why) it became what it is.

Transformation grammar has claimed that its way of describing language synchronically also reflects the behavior of the speaker and the workings of his mind, that, indeed, it not only states but also explains. This is in synchrony no more true than in diachrony. "There is (I said elsewhere) no evidence at all for assuming that the speaker's brain engaged in the marvelous task of generating speech, busily scampers and scuttles through the transformationist's rules of creation."⁶

The ahistorical and antihistorical attitude of some linguists and schools of linguistics lies in the spirit of our era. Sociologists in particular have chosen to throw out history, on the view that it is more important to know how things are than how they were. Doing this they have heedlessly rejected the experience and much of the wisdom of mankind, oblivious or (more likely) unaware of Santayana's warning that a society ignorant of its history is condemned to repeat it. Add to this insouciance with the past the notion that a collection and description of transitory data constitutes science, and that science must be deaf and dumb as regards human values, and the result will be, has already been, a vast amount of pseudo-objective reportage both dreary and vacuous. The devout and simon-pure synchronist, overlooking that *πάντα περὶ*, organizes and categorizes everything, as he should; but he explains very little, no matter how grand and slick the nomenclature he relentlessly invents.

Perhaps the ordinary school grammar text that offers no more than directions-for-use is entitled to explain nothing; it merely helps in the acquisition of a skill by teaching what a society regards as the proper linguistic standard, and thereby is prescriptive. But as soon as it goes beyond a statement of rules and concerns itself with synchronic and diachronic problems, even in a mild degree, it does explain something. But then it has become a grammar as different from the other one as a nutritionist's manual is from Fannie Farmer's Boston Cooking School cookbook.⁷

⁶ Pulgram 1967, 83.

⁷ Many schools and colleges impose a foreign language requirement upon their students, on the grounds (among others) that this will teach them something about a language other than their native one, and about its users. If, however, the students are compelled to acquire nothing more than a skill (more often than not an imperfect and ephemeral one), the vaunted goal of language instruction will not be attained: the directions-for-use conveyed by the usual school grammar (and, alas, by many teachers) do not per se teach any more about a language, or about language, than learning how to play "Happy birthday to you" on the fluegelhorn teaches about music. If the intent of the language requirement is not to be changed, the content of the instruction will have to be.

I just spoke of prescription, which together with its corollary, "correctness," formed the twin bugaboos of some structuralists. They believed, quite rightly, that it was not the linguist's task to prescribe or correct. But in their zeal for objective purity they often forgot that the linguist's description was by everyone invested with such authority as to become a prescription despite all disclaimers, and that their judicious refusal to *impose* values—correct vs. incorrect—did not relieve them of the obligation to *discourse* on the values cherished, for some reason, good or bad, by society.⁸ In any event, the linguist strikes no blow for freedom if he advocates, nor is he an enemy of progress if he does not advocate, the replacement of *as* by *like* ("Do like I tell you"), of *he doesn't* by *he don't*, or the loss of distinction between *uninterested* and *disinterested*, *lie* and *lay*, *flout* and *flaunt*, *tiring* and *tiresome*, *arouse* and *arise*,⁹ *forbidding* and *foreboding*, *infer* and *imply*, *reticent* and *reluctant* etc. With or without the blessing of the linguist, in the long run changes will or will not come.

Nothing of theoretical or of practical consequence is gained, however, if we replace the correctness taught by standard grammar books, with the well-formedness modeled by the non-existing ideal speaker-listener: his well-formed utterances are still those which the grammarian, now flying the transformationist-generative flag, declares to be well-formed since they conform to the approved standard. The adjective "ideal" simply expresses, albeit obliquely, the realistic admission that no speaker is entirely and permanently free from sin, or at least from error, or, to use the mildest words of reproach, from *faux pas*.

I trust that as I talk to you here for fifty or sixty minutes, all my sentences can be rated correct, or well-formed (you may choose any adjective you feel comfortable with)—at least morphologically, syntactically, and lexical-semantically. But I fear that phonologically I have erred now and then, or even unremittingly. I am not a native speaker of any form of English, and I have never quite learned to make the approved sounds. (Perhaps I have not tried hard enough.) This raises the question whether or not my oral performance before you exhibits the requisite correctness, or is, as many prefer to say, grammatical. (If you ever see in print what I am saying, you will find, I trust, that I speak, but do not write, with a foreign accent.)

I should suggest that each of the four levels of linguistic performance or analysis that we generally and conveniently set up—the phonological, morphological, syntactic, and lexical-semantic—has its own grammaticality. Consider Lewis Carroll's jabberwocky poem in *Through the looking glass*, of which the first stanza goes like this:

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe:
All mimsy were the borogoves,
And the mome raths outgrabe.

⁸ Recently a group of Black parents in the city of Ann Arbor obtained a court order obliging the school board to see to it that, though their children were to be taught Standard English, the teachers respond "more sympathetically" toward Black English as a legitimate dialect, using it as a bridge to the knowledge of the standard language. This at least recognizes, albeit in a sentimentally slanted way and with a redundant resort to the courts, that if a Black child, or any other child, is to earn a living by using brain more than brawn, the mastery of Standard English is indispensable, for better or for worse, in our society. Many battles need to be fought to make more humane the lives of all of us; but the one against the standard language is pointless, for even if it were won, the victory would confer no social or material benefit upon those in need.

⁹ At the United States Senate hearings on the Watergate scandal, in July 1973, the senator from Georgia asked the witness: "Didn't your suspicions arouse when you learned that . . ."; the senator from New Mexico, not to be outdone, then inquired: "Didn't it arise your curiosity when . . ."

If you ignore for a moment my phonological shortcomings, you no doubt recognize that I have spoken Standard English sounds. But while you recognize also many proper English endings (that is, bound morphemes) and an order that conforms to Standard English syntax, you may be startled by some lexemes (free morphemes) that you do not know. And if you are not already acquainted with Lewis Carroll or Alice or jabberwocky, you may conclude either that the words you do not understand do not exist (which betrays a rather high degree of self-confidence) or that your vocabulary has more lacunae than you had thought (which would have been my conclusion forty years ago when I was learning English: in fact, a lot of what I heard then was jabberwocky to me).

Carroll's poem was translated into German by Robert Scott (whom you perhaps know as the co-author of the great Liddle—Scott lexicon of Greek, and who was the real Alice's father), and it appeared under the pseudonym Thomas Chatterton in an article entitled "The Jabberwock traced to its true source" in *Macmillan's Magazine* of February 1872, p. 337. Scott tells that he was present at a séance during which the ghost of one Hermann von Schwindel (Herman van Swindle, if you wish) revealed that Carroll's poem was the English translation of an ancient German ballad:

Der Jammerwoch.
Es brillig war. Die schlichte[n] Toven
Wirrten und wimmelten in Waben;
Und aller-mümsige Burggoven
Die mohmen Räth' ausgraben.

This translation contains more real words (the entire second line, for example, consists of such) than does the English original, hence does not precisely render the non-sense of Carroll's poem. In other words, the lexical level is not ungrammatical in the same degree in the two versions. (Perhaps Scott was guided more than he needed to be by the tongue-in-cheek glosses that Carroll himself set down in one of the private little "periodicals" written and illustrated by himself for the amusement of his brothers and sisters.) On the other hand, the odd syntax of the first three words and of the final line does not correspond to Carroll's unimpeachable Standard English syntax: thus Scott's version is, unlike Carroll's, somewhat ungrammatical on the syntactic level.

More faithful to the original on all levels is the French translation by Frank L. Warrin, Jr., which appeared in *The New Yorker* of 10 February 1931, p. 52. (It is curious that the German translation is not by a German, and the French not by a Frenchman.)

Le Jaséroque.
Il brilgue: les tôves lubricilleux
Se gyrent en vrillant dans le guave,
Enmîmés sont les gougebosqueux,
Et le mômerade horsgrave.

This leaves the French reader in exactly the same dilemma as is the English reader of Carroll: recognizable sounds, bound morphemes, and syntax, but weird lexemes.

In what is known as double-talk, the speaker begins a clear enough English sentence, but before he comes to the end of it he trails off into a sequence of sounds that do not add up to anything either lexically or syntactically recognizable—though they are undeniably grammatical on the phonological level. Some comedians have the ability to string together sounds, including an intonation, that evoke the

impression of a foreign language which they themselves do not speak, but that convey no sense.

Now I should like to quote a three-line poem from a book of poems by John Hollander, *The night mirror* (Atheneum Publishers: New York 1971), p. 42:

Coiled alizarine.
Curiously deep, the slumber of crimson thoughts:
While breathless, in stodgy viridian,
Colorless green ideas sleep furiously.

The poem is duly dedicated to Noam Chomsky, who is of course the author of the final line, though he obviously was not writing poetry. This sentence has generated an animated discussion as to its grammaticalness. Some maintain that it is grammatical because it does not contain anything that is un-English; others condemn it as ungrammatical because it makes no sense. I do not know whether the latter would assign sense to it now that it is part of Hollander's poem; but I rather suspect that a fellow poet or a literary critic might grow ecstatic over its beauty and its deep meaning (not, if you please, its deep structure). To me, at any rate, the line has always been totally grammatical on each of the four levels, even if it does not pass the reality test. (In case you wonder, by the way, about alizarine in the title of the poem: it is not a jabbawocky word but is derived from alizari, also known as dyers' madder, a plant of the genus *rubia*, whose dried and ground roots are used in the fabrication of a red dye for artists' paints.)

The marriage of reality and grammaticality, which beds epistemology with grammar, should never have been consummated: the offspring were bound to be freaks. One recalls the dismal lists, in various publications of the past twenty years (though the birthrate has receded of late), of asterisked sentences consigned to the limbo, if not the hell, of ungrammaticality—though their only sin was lack of sense. But often there was only a subjective allegation of senselessness, as in *the boy astonished the pebble*, or in *I wanted me to go*; a context can be constructed in which both of these, like many others, do yield a sense: the first surely does in a fairytale (and who will say that fairytales are ungrammatical from beginning to end?), the second in a psychological context (I had the will to go, but, perhaps, my muscles did not respond). The reality test, if taken seriously, would require one to asterisk *the sun rises in the east*, because the sun does not move, except through an optical illusion caused by the rotation of the earth. But would the sentence have been grammatical before Copernicus found out the truth? Would Latin *sol oritur* be grammatical because the Romans did not know any better, and would then the translation from Latin, 'the sun rises' also be grammatical, whereas the same phrase as an English original is ungrammatical? Clearly, something has gone awry in this view of grammar and grammaticality.

Suppose I say to you: *The water the glasses you are drinking from contain is poisoned*. You will assume, or at least hope, that I am lying; but you will have understood me. I have pronounced a sentence with triple embedding: three nominals—*water, glasses, you*—and three verbs—*are drinking, contain, is poisoned*. But if I say *The man the woman the child saw met died*, you will be puzzled, although the grammatical structure is the same triple embedding: *man, woman, child* and *saw, met, died*. Some will call this sentence ungrammatical since it is unintelligible, and they will blame triple embedding for its failure to convey a meaning. But since the earlier sentence about the water you are drinking is structured with triple embedding also, yet quite intelligible, it cannot be triple embedding as such—that is at fault in the second. When I argued in this vein once before in a discussion at a

LACUS meeting, it was objected that my intelligible example of triple embedding (it was not the same as the one I have given you now) did not count since I had constructed it for my purpose and since therefore it was not spontaneous. Attentively constructed and spontaneous speech may have to be differentiated stylistically or psychologically; but no matter how it is created, an utterance either is or is not grammatical. I should conclude that the intelligibility and the spontaneity tests are as irrelevant for the determination of grammaticality as is the reality test applied to jabberwocky, to the colorless green ideas, and to the sun rising in the east.

Our fellow Lacustrian Peter Reich begins a story that, he says, a linguist told his daughter, with the innocent enough sentences: *This is the house that Jack built. This is the malt that the house that Jack built contained.* But then every one of the nine following sentences is enlarged by one embedding. The final sentence is a riot of eleven embeddings—and I shall not read it to you, even if the linguist's daughter said admiringly: "Nobody can tell a story like you can, daddy."¹⁰ Though the daughter of an indulgent linguist who permitted her to say "like you can" instead of "as you can," the kid had a point. But it is remarkable that if you follow the progress of embedding step by step, the last sentence, covering seven lines and leaving you breathless, is a bit complex but still understandable. I leave it to the psychologists and the neurologists to figure out what is going on in the brain of the hearer, or, indeed, of Peter Reich; but as a linguist I shall not tell Reich where he ought to have stopped because he was gyring and gimbling into ungrammaticality; he was not. His literary style, however, was deplorable. It might be interesting to determine the tolerance for multiple embedding. The job would be difficult because of the many imponderables and variables presented by the context. The efficacy of short-term memory may play a role, but speakers of different languages will react differently: to a speaker of English, the verb at the end of an interminable German dependent clause, or of an elegantly contrived Classical Latin period, may seem intolerably delayed—but native speakers of these idioms are not in the least perplexed. Still, there are limits a good stylist will not overstep.

According to what I said a while ago, those who are able to use the standard dialect speak more "correctly" than those whose only register is a non-standard form of speech. The standard is often referred to, by laymen and linguists, as the "language", the other speeches are "dialects". It would really be simpler to speak of "standard dialect" and "non-standard dialects", making the term "language", in linguistics, superfluous. I am not recommending its eradication; but as linguists we should, lest our terms and phrases permit distorted views, aspire to a modicum of terminological hygiene. For example, instead of saying that "language X has six dialects", we ought to say that "six dialects are conveniently subsumed in one diasystem", whereby "diasystem" is defined as a class of dialects.

A class of things does not occur in nature but is created by the classifier according to reasonable and useful criteria—which, however, are not always quantifiable or objective, so that the boundaries of many classes are elastic, including diasystems, depending on the purpose of the classification. Indeed, one may wonder whether even an idiolect is an honest God's truth or a hocus-pocus class (if I may use Householder's apt expression). It is true that all material things on earth are sames and belong to the same class, if the criterion for admittance to that class is that members must consist of matter and exist on earth; but it is equally true that, since no two things on this earth are actual physical sames, none, not even two amoebas or two cells of the same organism, deserve to be placed into the same class. On purely physical criteria, therefore, one may deny the feasibility of classes.

¹⁰Reich 1977, 63-64.

Clearly this applies to the linguistic noises we make. If my saying *dog* now and my saying it hundreds of times more, if all utterances *dog* by all speakers of English are judged sames—and if they were not we would not be talking to each other—the sameness lies outside the physical level of the noise; it flows from the agreement, the convention, that every time the noise *dog* is made it betokens three sound classes or phonemes, a form class or morpheme, and whatever non-segmental classes the utterance requires. And that, I believe, is sufficient cause for making the various “emes” parts of a linguistic analysis. What allows us to function in this world, linguistically or otherwise, is our ability to classify events and things. Even the mouse can generalize “catness”, as it were, and act accordingly whenever a single token of that class is perceived. As humans, we not only have learned to classify a lot of things that mice know nothing and care nothing about, but we also have named each class, thanks to our human faculty of speech. (Some will give you an argument on man’s uniqueness as a speaker of language; I shall come back to that later.)

Classes imply a taxonomy, a concept greatly abhorred by many recent linguists, especially with reference to what has contemptuously been called the taxonomic phoneme. (“Phoneme—shmoneme” a Grand Panjandrum once instructed me haughtily.) Nonetheless the phoneme—and taxonomic it is, whether qualified as “natural” or “systematic” or “autonomous”, and even if it is dismembered into constituent features—is being resuscitated by those who are acquainting themselves with the older literature, and reinvented by the innocent and the ignorant, involuntary victims of a deficient instructional diet who are becoming aware of their starvation. Beside the phoneme, also other features of earlier linguistics were hastily and injudiciously interred by the famous revolution of the ’fifties and ’sixties (I have already mentioned the resurfacing of the “surface”), and remained unknown to several academic generations of students and teachers. That is unscholarly and wasteful. But scholarship and research had been set aside in some quarters, and replaced by the instant opinion and by illusory originality. The field of linguistics came to be strewn with the dead bodies of those who sought quick fame, and sometimes found it, anemic and evanescent though it turned out to be. A German proverb says *Alter schützt vor Torheit nicht* ‘Old age does not protect from foolishness.’ True enough. But youth protects even less, and out of the mouths of babes comes pabulum. All else being equal, accumulated experience and time spent in studying what others, and not just one’s like-minded contemporaries, have brought forth, is instructive, indeed essential. Ripening of mind and knowledge requires time, reflection, and the assiduous use of a good library. Occasional bows, vague and semi-expert, in the direction of Aristotle, Descartes, Leibnitz, Humboldt, or Wittgenstein cannot fool all of the people all of the time. Let us not overlook, however, that a number of older and younger scholars have produced excellent work in the new key (if I may use this term to subsume several currents); but they invariably emerge from a background that stresses, not just the shallow disputatiousness of so-called abstract linguistics, but concrete concern with languages and their history, and with the scholarship of the past century and beyond.

Nearly seven hundred years ago Dante said in the *Paradiso* (xxvi. 130-132) of his *Divina Commedia*:

Opera natural è ch’uom favella;
ma così o così, natura lascia
poi fare a voi secondo che v’abbella.

This is, in John Ciardi’s translation:

That man should speak is nature's own behest;
but that you speak in this way or in that
nature lets you decide as you think best.

This you recognize as being, in a nutshell, the view of innateness, in a form to which I, for one, gladly subscribe. (Dante held, side by side with the fancies of his time, some quite respectable and still useful linguistic opinions.) It says that as human beings we are born with the faculty of learning a language, but which one we learn (if any) depends on what we are exposed to.¹¹ The model can be any dialect, standard or other, and even, however unnaturally, a single idiolect. If that idiolect were a privately constructed language, perhaps altogether artificial and not related to any known language, then the child would learn it alone—provided that it is systematic and structured, for these are the qualities that the child is equipped to seek and discover, and to learn. In this sense, then, the child does gradually formulate, in the process of learning, the hypothesis which transformationists speak of (though I should be willing to call it a theory), which results in the knowledge and application of the generalizations which we call rules of grammar. If, on the other hand, the child is exposed to nothing but unstructured and unsystematic gibberish, no hypothesis, no theory, no grammar can be formed: there is no language, and none can be learned.

When and how this faculty of language-learning came to be our heritage, we do not know much more about today than did Dante; nor do we know how the faculty is translated into the reality of speech. Rationalistic speculation about that problem is scholasticism, discredited by Francis Bacon four centuries ago. It can be no more fruitful than the medieval dispute on how many angels can dance upon the head of a pin—especially before even one angel, dancing or doing anything anywhere, has been detected by a sober observer. Solid knowledge is hard to come by because we live, fortunately, in a culture that does not permit the cracking open of skulls just for curiosity. Eventually the right way will have to be shown by the neurologist, the neurosurgeon, the brain wave expert, and by the neurolinguist of the future—who will have to be something better than an anti-empiricist linguist who dips into textbooks on neurology. The human brain is the culmination of evolution on earth, up to now; and language is its supreme accomplishment. To believe or pretend that we are able to fathom this mystery through dialectics and logomachy is arrogant and stupid in our time, when we should know better.

It does not matter what this faculty of speech is called: competence, innate theory of language, universal grammar, innate knowledge of grammar, Language Acquisition Device, or even LT(HL), which stands for a grandiloquent Learning Theory of Humans in the Domain Language.¹² All these names, though they purport to illuminate the darkness, lack a tangible substance, and therefore cannot but confirm our ignorance of how human beings learn language, let alone how the species came by this faculty. Worse still, the terms and names change all the time, not only in the employment of different authors, but in the writings of a single author.¹³

¹¹A dozen years ago (see Pulgram 1967, 82), while acknowledging the faculty of speech as a uniquely human attribute, I doubted that "language learning differs intrinsically, rather than merely in speed and efficiency, from other types of behavior learning; and *ad hoc* appeals to intuition provided no additional knowledge." I still stand by the final phrase; but I should now say that the "speed and efficiency" are such as to constitute a difference in kind, not just in degree, from the other capacities for learning, and are operative specifically in language acquisition by the child.

¹²So in Chomsky 1976.

¹³See the sensible remarks of Gray 1977. The following thoughts about the evolution of our species apply *mutatis mutandis* to some current linguistic theorizing: "Don't worry about the names—*Australopithecus afarensis*, *Australopithecus africanus*, *Homo habilis*, *Homo erectus*, and so forth. There are just too many of

One could concede that even out of unsubstantial and for the moment unsubstantiated rationalizing a modest hypothesis might emerge; but one cannot take seriously the re-appearance of that hypothesis now somehow posing as solid foundation for the next surmise, and so on up to giddy heights of speculation, expressed in a prose that crawls with (if I may use slang) weasel words. What can one expect from a deduction that is based on something which "it seems that we can tentatively postulate," and what store can one set by a conclusion that declares "... I doubt that the simplifying assumption, though obviously false, significantly affects the validity of the analysis based on it."¹⁴

It is obvious that the child learns a language, or more than one simultaneously, through some non-intellectual, non-conscious process for which it is, as a human being, programmed. Of course, I do not pretend that the term "programmed" actually explains what happens, any more than does the Language Acquisition Device, or LT(HL); nor do I think it enlightening to replace "learning", a process for which we possess no theory, either biological or psychological, by "internalizing," because for that we have no theory either: a mere change of name satisfies but the gullible. Whatever that special childhood capacity is or however it works, its reality manifests itself in the lack of it in our riper years, when language-learning is a demanding intellectual task, consciously undertaken. One must therefore recognize the fatuousness of the pedagogical method which directs that the teaching of a language to the post-childhood learner imitate and recapitulate the childhood experience—of whose nature we know next to nothing in the first place. The method (if it deserves to be so called) was presumptuously titled "linguistic", and it came to be touted by people who claim expertise in applied linguistics, a designation which often camouflages partial or total ignorance of linguistics. Attempts to teach an adolescent or an adult language in this basically undefined and undefinable manner were not only unsuccessful but also a hindrance to learning: behind catchwords like "overlearning", "automatic response", "pattern drill", coupled with a ban on grammatical explanations, lurked the Educator's desire to make studying "fun" and to exclude from it the brain—which is precisely the organ the learner ought to be encouraged to use once he has lost the childhood knack.

A fascinating extension of the innateness problem raises the question whether humans are the only beings on earth thus endowed. It is quite unbelievable that some animals actually know how to talk but choose not to: speech confers such an enormous advantage that no animal in this world could afford to forego it willfully, or would have a choice of foregoing or using it.¹⁵

Chimpanzees have been trained to make some 250 gestural signals in American Sign Language (Ameslan), that is, to use human concepts and structures, albeit in non-acoustic and rudimentary, though sometimes amazingly efficient, ways. They are, without any doubt, very intelligent animals. (What I am saying about chimpanzees, like Washoe and her tribe at the University of Oklahoma, applies also to gorillas, like Koko and her companions at Stanford University, and to the apes at the Yerkes Primate Research Center in Atlanta.) But it would be vastly more to the

them, they change all the time, and even the people who make them up can't agree on them. (Would you have consented to learn the alphabet in the first grade, if you had thought the second-grade teacher was going to use a different one?) The folks who gave us *A. afarensis* included nine different diagrams illustrating nine different ways of naming five different fossil types that are commonly considered important in human evolution. Oddly enough, this is an improvement: it used to be that practically every bone was named a new species. . . ."

(Foster 1979, 14.)

¹⁴Chomsky 1976, 116 and 121.

¹⁵On this I fully agree with Chomsky 1976, 40-41, and in other places.

point if the trainers of these primates examined how they talk to one another in chimpanzee or gorilla language—if they do. But all observers agree that they do not. The investigation of the noises dolphins make, who are not taught any portion of human language, is a more intelligent and instructive kind of research.

Whether more or less efficient communication within some animal species merits the name “language” or not, depends on how far one wants to stretch the term. It has never been easy to define language; but perhaps it is possible to draw up a list of minimally necessary features. Hockett once tried just that, and he named seven of them: duality, productivity, arbitrariness, interchangeability, specialization, displacement, and cultural transmission.¹⁶ (Not all these terms are meaningful without exegesis, which I may omit, however, for my present purpose.) He then argued that although one or another type of animal communication possesses one or several of these features, none has them all, and none is therefore reasonably definable as language. Hockett’s list may or may not contain all necessary and all relevant features; still, those who teach chimpanzees accepted the seven as criteria of definition for language—but asserted forthwith that the chimpanzees’ efforts at communicating comprise them all. To the question as to why, then, chimpanzees do not talk as do humans, at least in sign language, the answer was that indeed they do have the same gift of speech as humans, but in a lesser degree. But this raises the question as to how great a difference in degree may be before it becomes a difference of kind, and therefore the basis of a new definition and a different name. But insisting that chimpanzees possess the human faculty of speech, though to a lesser degree, is like asserting that someone falling or jumping off the top of the Eiffel Tower does fly, like a bird, though less well.

Chimpanzees are taught signs, we are told, because their vocal apparatus is not capable of producing speech sounds—human sounds, that is; but they might have used the noises they can make to articulate chimpanzee language—if they had the faculty of speech. (That a suitable vocal apparatus must precede the neuro-cerebral endowment for speech is nonsense: not even humans have evolved specific organs for speech production but have adapted organs designed for other functions to that end.) In this renunciation of vocal speech, as in the whole operation of training chimpanzees, the pervasive and destructive flaw is the attempt to impose human speech upon another species, instead of searching for that species’ own linguistic capacities. Only the discovery of the latter, regardless of the success of the former (even if Washoe now teaches what she has learned to her child), would prove that chimpanzees possess language.

Since apes and humans do not belong to the same evolutionary branch, since chimpanzees are not among our ancestors, theirs cannot be a retarded or primitive human language. Having in any event knowledge of but six millennia of human speech, with languages all at the same evolutionary level, we do not know, nor can we guess, what primitive human language was like one or three million years ago.¹⁷

Well, three million years ago seems like a good place to stop. Yes, I have learned other things, too, that I did not talk about. But one of the most important

¹⁶ Hockett 1958, 574-585.

¹⁷ At times the chimpanzees’ handlers are carried away by the sentimental attachment which they could not help forming toward their charges. Roger Fouts, who has trained the chimpanzee Washoe for over a dozen years, and now wonders whether her offspring will be taught signing by the mother rather than by himself again, was moved to say (if correctly quoted in an interview published in the *Ann Arbor News* of 15 March 1979, p. C 14) that “the public is probably not ready for the chimp’s liberation yet,” and that “Chimps are non-human beings, but to think they are not individuals is just another form of racism.”

is the recognition that my ignorance has been increasing at a far greater rate than my knowledge, but that, were it the opposite, I would not have been learning a whole lot. In this, at least, there is some progress. But I trust I have now reached only the end of my first forty years as a linguist. I'll tell you more if you elect me again to be your president forty years from now.

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I

EXPANDING HORIZONS IN LINGUISTIC THEORY

WHAT IS A LINGUISTIC RULE?

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1. This paper has grown out of a desire to understand some of the problems involved in one of the recurring themes in linguistics during the past fifty years, i.e. the role of linguistics as an empirical science. Certainly a thorough and unbiased investigation of the topic is long overdue. The concept of science, for example, has varied according to the theorist doing the research, with the structuralists emphasizing the need for description of and adherence to data and the transformationalists tending more toward introspection, internal rules, and the generation of original sentences. This paper represents only a part of my own preliminary conclusions on the subject and I have chosen to concentrate on a small part of the total problem: the linguistic rule and its role within linguistic theory. Even with this strict limitation, the discussion can only be cursory.

For the purposes of this paper, I am not asking the question whether linguistics is a science or not. I am assuming that it is--if we as linguists want to make it so. I am assuming, too, that linguistics is not a branch of mathematics. Theories of mathematics and theories of the empirical sciences are alike in that they both consist of internally consistent systems--but they are quite different in that the empirical sciences have an additional requirement that they must have some kind of "bridge principles" that "indicate how the processes envisaged by the theory are related to empirical phenomena with which we are already acquainted, and which the theory may then explain, predict, or retrodict." (Hempel, 1966: 72) That is, a theory of an empirical science must reflect the real data of the discipline being studied and the internally consistent system must be interpretable in terms of the real world. This very important distinction has, I think, been far too frequently disregarded and it plays a major in this paper.

In the following sections I will first discuss briefly the concept of rules in terms of Item and Arrangement (IA) and Item and Process (IP) descriptions, then I will compare a linguistic problem with a simple problem in physics and show how the problems of linguistic description are not unlike the problems of description

in physics, with rules serving as the linguistic equivalent of the scientific equation.

2. The concept of the linguistic rule is not a new one; after all, Panini wrote his grammar in terms of rules. But at the same time, the linguistic rule has taken on a more important role in linguistic theory during the past two decades after a period of deemphasis.

Hockett defines a part of the problem in his discussion of "Two Models of Grammatical Description" in which he discusses IA and IP grammars. The IA model stresses the static aspect of the synchronic grammar and describes the distribution of alternant forms of a given linguistic unit by listing the forms and the environments in which they occur; it does not give priority to any one of the forms. The IP model, on the other hand, expresses the distribution of alternant forms in terms of derivation from a single basic form. In an IA description of the English plural endings /s, z, ɪz/, for example, all of the variants of the morpheme have equal standing. None of them is 'basic' to the morpheme. An IP grammar, on the other hand, requires that one variant be a base form, with the distribution being expressed as a derivation from that form. Hockett(1958: 282) posits /z/ as the base form and derives the other forms from /z/. Bloomfield(1933: 212) chooses /ɪz/ or /ez/ as the basic alternant and derives the other variants from /ɪz/. Such derivations employ rules. Both linguists actually use a form of the simplicity criterion in choosing their base forms. Hockett uses phonemic distribution as the basis of his choice of /z/ and Bloomfield chooses /ɪz/ because it also allows one to include the distribution of the contractions he's (he is/he has) and it's under the same rule (212).¹

3. The contrast between IA and IP grammars also carries over to the syntax and provides one of the major formal differences between the structuralist viewpoint and transformational grammar. Consider the sentence (1):

- (1) The cat caught the mouse.

In terms of immediate constituents, (1) breaks down as in Fig. 1.

Fig. 1. The cat caught the mouse.

NP		VP	
		V	NP
Det	N		Det N

Fig. 1 shows only what the components of the sentence

are, i.e. a sentence is composed of a NP + VP, etc. One might also express Fig. 1 in terms of formulas as in (2).

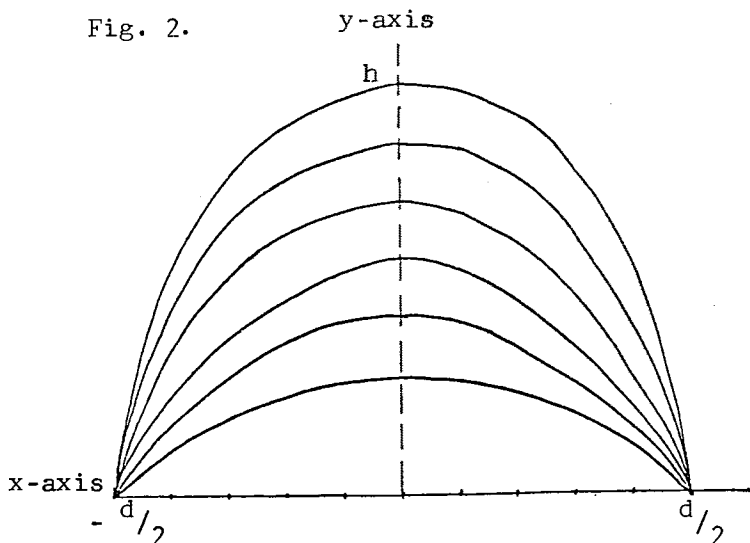
- (2) S : NP + VP
 VP : V + NP
 NP : Det + N

(2) also illustrates the components of (1) and can be read the same way as Fig. 1. By merely replacing the colons with arrows, we have the same rules that occur in transformational grammar phrase structure rules. The components are no longer viewed as a static state, but rather the components are derived. Thus the phrase structure rules of TG illustrate an IP model of syntax as compared to the IA model of immediate constituents. Other than this 'sense' of process, however, there is little formal difference between the generative phrase structure rules and the immediate constituent description in Fig. 1. The PS rules seem to be only a notational variant of the immediate constituent grammar.

Chomsky's real step toward the IP model for syntax was the transformation. By relating the passive and active sentences, e.g., the transformation provided the same type of derivational model for the sentence that the structuralist IP model did for the morpheme, in that it selected one sentence as the base form from which the other sentence forms were derived. The transformations, of course, project the same sense of 'becoming' that the PS rules do and it is precisely this sense of change that is so important to the transformational theory, because it was one of Chomsky's expressed goals to try to capture the mental processes involved in the generation of a sentence (Rosner & Abt, 1970: 76).

One major question arises in a discussion of IA and IP descriptions: the IP rules give the sense of process and change and thus possibly of psychological process, but do they really capture these processes? A comparison of linguistics with a problem in physics suggests that perhaps they don't.

4. Consider a golf game where the hole is 100 yards from the tee. This hole can be reached with any golf club, but the ball would follow a different trajectory for each club. It isn't difficult to imagine the fairway as the horizontal axis in a Cartesian plane and a vertical line midway between the tee and the hole as the vertical axis. If we were to set a camera off to the side of the fairway and film six golf shots to the green with six different clubs, then we could easily trace the paths of the golf ball on the Cartesian plane. If we pretend further that the golf course is on the moon, where there would be no atmospheric drag, then the ball would in each case follow a parabolic path as in Fig. 2, for which one could write separate equations as in (3).



$$(3) \quad x^2 = -125 (y - 20)$$

$$x^2 = \frac{-250}{3} (y - 30)$$

$$x^2 = \frac{-125}{2} (y - 40)$$

$$x^2 = -50 (y - 50)$$

$$x^2 = \frac{-125}{6} (y - 60)$$

$$x^2 = \frac{-250}{7} (y - 70)$$

In each of these equations, the number in parentheses indicates the maximum height of the ball. All of these equations can be summarized in a single equation as in (4), where d = the distance from the tee to the hole and h = the maximum height of the ball.²

$$(4) \quad x^2 = \frac{-d^2}{4h} (y - h)$$

(4) is a neat little equation; given any golf course on the moon, it can tell you all of the possible trajectories a ball could follow in going from the tee to the green. But for all of that, any golfer can tell you more about the physics of the flight than the equation.

If one uses a driver, for example, one can't hit the ball nearly as hard as if one uses a nine iron. Even this simple statement says more about the physics of the problem than does (4). The difference in the trajectory depends on two basic components: the force with which one hits the ball and the angle of pitch in the club head. It is these elements acting against the gravity of the moon that determine the path of the ball, and any equations that do not include the force of gravity and the force acting on the ball cannot explain the physics of the trajectories in the problem. Equation (4) includes neither of these and thus provides only a mathematical description of the surface data without providing any explanation of the actual forces involved.

5. In many ways, a problem in linguistics is similar to the elementary problem in physics. Equations and laws in physics describe the processes in the physical world. If we consider rules to be the linguistic equivalent of the equations in physics, then rules in linguistics should describe language processes. But then the question must be asked: what kinds of processes? What is the linguistic equivalent of the forces that act in the trajectory problem?

Consider the Latin sentences in (5):

- (5) i. Puer puellam amat.
- ii. Puellam puer amat.
- iii. Puer amat puellam.
- iv. Puellam amat puer.
- v. Amat puer puellam.
- vi. Amat puellam puer.

All six of these sentences are supposed to be acceptable grammatical sentences in Latin and all have the same basic meaning: boy loves girl. Just as passive sentences can be derived from a basic declarative sentence, so would a 'scrambling' rule also derive all of the above variants from one basic underlying order, probably that of (5i).³ This scrambling rule is similar in function to the general rule for the parabola in Fig. 2: it shows the structural relationship between different surface forms, but doesn't really give any indication of the topicalization and focus concepts that caused the alternant forms in the first place. Just as the parabolic rule in Fig. 2 says nothing about the physics in the projectile problem, so the scrambling rule says nothing about what is happening in linguistics. It only describes the possible variations of the surface structures but does not give any hint as to why such variations are possible or how the speaker produces these structures. The syntactic categories, in other words, are similar to the space coordinates in the physics problem, and just as the underlying forces must enter into a

description of the physics in the trajectory problem, so must the basic processes involved in the production of the sentence be an integral part of any linguistic description that goes beyond the surface variations of performance. By omitting all references to the underlying cognitive forces, both the scrambling rule and the passive rule fail to meet this requirement.

Thus the surface data are just like the data involved in the trajectory problem; they are the result of underlying nonsyntactic processes. Syntactic rules that are used to generate these data describe only the data and not the psychological processes that produce them. These syntactic grammars, like the parabolic curve, are fundamentally formal and mathematical and they do not describe natural language. Just as the curve of the trajectory has its own mathematical existence without reference to the external physical interpretation and without relationship to physics, so the grammar that is drawn up to describe the surface data does not describe the processes involved in the generation of human speech. Since the sentences themselves are generated by the human mind, so must the processes involved in the generation be psychological in nature. Like the syntactic rules equation (4) can generate an infinite number of such curves, but it cannot describe the processes that generate the energy to propel the ball through the given path. In the same way generative grammars can generate an infinite number of sentences without ever touching on the truly productive nature of human language.

6. I have suggested, then, that linguists must eventually confront squarely the problem of psychological rules of language. After all, language is produced by human minds, not by machines or by descriptive grammars. On that basis alone one should guess that some aspects of language can only be explained through an examination of the psychological processes. To do so is not necessarily the flight into fancy that it once was considered to be and still is by some people, or at least it shouldn't be if we apply our methodology correctly. In fact, there are even parallel situations in physics. I don't think anyone, for example, has ever seen an atom, and certainly they hadn't when the first atom bomb was exploded, but that didn't make the explosion any less effective or deadly. In fact, certain predictions were made by nuclear theory and one of these predictions included the possibility of a bomb; that the atom bomb worked helped to support the theory itself.

This same principle holds for mentalistic or psychological rules. By assuming application of the rules, we make certain predictions about the output, not only in terms of language data, but also in terms of

language change, language learning, language universals etc.⁴ Most importantly, a linguistic grammar must generate not only correct sentences, but also correct sentences in correct environments, otherwise our sentences turn out to be nothing more than spatial equations without access to the underlying cognitive concepts that explain the sentences.

7. The above discussion should not be understood to imply that the analysis of surface syntax is irrelevant to human speech. In fact the implication is quite the opposite. In the projectile problem, for example, although the path of the curve is unrevealing by itself, when other pertinent information is considered, the trajectory becomes an integral part of the total problem. The trajectory reveals much about the forces applied and the conditions under which they were applied. The same statement holds for syntax. The surface syntax may be the result of psychological processes based on nonsyntactic phenomena, but the psychological processes themselves cannot be measured except through the analysis of the syntactic structures. The surface data must in a sense be 'interpreted' in order to reveal the real forces operating in the production of the data, whether these forces are physical, as in the trajectory problem, or psychological, as in linguistics. The real generative processes in language lie in this interpretive element of language. Although a formal theory of syntax may well exist as a subtheory of linguistics, as a part of human speech, syntax must be considered derivative.

As an example of interpretation, consider the above rule (2i): $S \rightarrow NP + VP$. Although (2i) is not a universal in itself, it probably represents the syntactic realization in English of a universal cognitive rule of language. That the syntax rule is not universal is attested to by the existence of VSO languages. The rule itself represents the syntactic realization of the cognitive tendency for a speaker to focus on one argument within a semantic proposition. Thus if a language has a focus rule that highlights the logical subject, then a subject/object language results. If the focus rule highlights the logical object, then an ergative language results. Thus the rule (2i) can be seen to describe the derivative result of an underlying psychological process.

8. This paper was not intended to be a program about how linguists should do things. It represents only an attempt to understand the role of a linguistic rule and how such a rule operates relative to the requirements of empirical science. The examination of the relationship has led me to certain conclusions, namely,

that although IP grammars may project a feeling of change and generativity, they are really little more than notational variants of the IA grammars as long as they are based on surface syntax relationships. Such rules may describe the surface syntax relationships, but they really play no role in the actual production of speech, in child-language learning, or in language change, except as a description of what has happened to the syntax. Any real process rule must be based not on syntax, but rather on the underlying cognitive and psychological processes that generate the grammatical constructions in speech. But if that is true, then it really makes no difference whether one uses a process grammar for the description or not. The description should be equally valid in either framework, depending upon what one wants to show with the description.⁵ In any case there is little likelihood that one can find theoretical grounds for supporting either type description except as a part of formal syntax completely separate from the study of human language.

I should like to point out that although my conclusions depend upon the comparison of linguistics to physics, the comparison exists separately from the conclusions. Thus whether or not one accepts the conclusions, the main purpose of the paper will have been met if the comparison has provided some insight into the role of linguistics as a scientific discipline in its own right.

FOOTNOTES

¹ (1958:282) All three variants of the morpheme occur after vowels according to the rules of English phonology, but only /z/ occurs after vowels in the plural morpheme. Since all of the other variants are phonologically predictable in the environments in which they occur, /z/ must be considered the basic form, since its environment cannot be derived.

² On earth the equations would be made more complicated by the drag of air friction which alters the speed of the ball and the parabolic path, so that the problem as described represents a somewhat idealized example of the theory.

³ Although Latin has a predominant OV order, Lakoff (1968) and Bever, Fodor and Wexsel(1965) posit an SVO order.

⁴ In fact, I would suggest that the single most important question in linguistics is the question as to

what should be considered valid evidence in the support of linguistic theory. So far as I know, only Skousen (1975) discusses the problem in any depth, and that only for phonology, although Barnes (1979) discusses evidence for underlying word order in language.

5 Hockett(1954) comes to basically the same conclusion on the equivalence of IA and IP descriptions.

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CENTRIFUGAL FORCE AND BLACK HOLES IN LANGUAGE¹

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Nuclear vs. peripheral structure in language has been well recognized for some time, especially since Pittman's 1948 article on the subject. What does not seem to have been as well recognized is the centrifugal force tending to drive some items away from the core of the nucleus, and its opposite, a gravitational force tending to drive some items toward the core of the nucleus.

1. Grammatical repulsion

Centrifugal force (grammatical repulsion) may be observed in languages like English where a lengthy modifier in a noun phrase will usually be pushed out of its normal position and moved to the end of the noun phrase. And if there is more than one long modifier, the longer one tends to be shoved farthest from the noun head. In other words, the heavier the particle the farther it gets flung.

- (1.a) a sitting hen
- (b) a hen sitting on her eggs
- (2.a) the tall bespectacled brown-coated man
- (b) the tall bespectacled man in the brown overcoat
- (c) the tall man with spectacles who is wearing a heavy brown overcoat
- (d) the tall man in the brown overcoat who is wearing a distinguished-looking pair of horn-rimmed glasses
- (e) *the tall man who is wearing glasses in a strikingly handsome heavy brown overcoat
- (f) the tall man in a strikingly handsome heavy brown overcoat who is wearing glasses

Notice that in their normal prehead position in the noun phrase these modifiers are usually just one-word adjectives; the longer modifiers are in posthead position. Notice also a second factor, namely that the prehead position has simple words, the first postposition has prepositional phrases, and the second postposition has relative clauses; the higher they are up the grammatical hierarchy the farther out they tend to get flung. John Clifton has pointed out to me *(2.e) and (2.f), where the hierarchical criterion outweighs the length criterion.

In Dai Chin, a Tibeto-Burman language of Burma,² the normal clause order is S-O-V when S and O are both pronouns or both nouns. But when one is a noun or noun phrase, that one has to be

farther from the verb than the pronoun, thus giving S-O-V or O-S-V. Note that they are thrown to the left of the clause, not the right. Many Philippine languages have a comparable rule in their clauses, that all monosyllabic pronouns directly follow the verb, and noun phrases then follow the pronouns.

Adverbs are treated similarly in Thai clauses: a short adverb directly follows the verb S-V-Adv-O-IO, but a long adverb is pushed to the end of the clause S-V-O-IO-Adv.

In the following example from Nyakur, a Mon-Khmer language of Thailand, the three modifiers follow the noun in the order of their length.

- (3) phaphraw/mɔʔ / chɔ:k khli:n/ ʔɔ:k phɔktɛy phale:n/phanih tuʔ
 woman beautiful hair long put-on shirt red person that
 N Mod₁ Mod₂ Mod₃ Clas. Dem.
 'that beautiful woman with long hair wearing a red shirt'

The difference in order between (4.a) and (4.b) is apparently also due to centrifugal repulsion, with the long subject being repelled.

(4.a) Your attitude is strange.

(b) It is strange that you don't like John.

These kinds of facts to which I have applied the "centrifugal repulsion" metaphor have probably two motivations: (1) physical length attracts attention, so banishing a long grammatically peripheral item to the physical periphery keeps it from overshadowing the nucleus; (2) higher grammatical ranks tend to be outer constructions, and lower grammatical ranks tend to be inner constructions.

2. Grammatical attraction

Gravitational force (grammatical attraction) may be observed in languages where the verb tends to attract non-verbal items such as time, subject, and reality (mood) indicators (5.b, c; 7.c; 8), or in languages where the noun may attract the number or the case indicator (6.b, c; 9.b, c).

- | | | | |
|-------|----------------------------|--------------|----------|
| (5.a) | Nó đã thấy.
he past see | (Vietnamese) | 'He saw' |
| (b) | He saw.
he see-past | (English) | 'id.' |
| (c) | Eblepse.
see-past-he | (Greek) | 'id.' |

- | | | | |
|-------|-----------------------------------|--------------|-------------|
| (6.a) | của các người
poss. pl. person | (Vietnamese) | 'of people' |
| (b) | of people
poss. person-pl. | (English) | 'id.' |
| (c) | anthrōpōn
person-pl.-poss. | (Greek) | 'id.' |

With gravitational attraction often comes contraction into a small closed class and a change from optional to obligatory presence. Thus in (5.c) the open universe of possible subjects in Greek is contracted to a closed class of six items (1sg, 2sg, 3sg, 1pl, 2pl, 3pl). But in Vietnamese (5.a) the possible substitutes for nó are an open class. And an expansion of the subject (i.e., as a noun phrase) in Greek (5.c) would simply be added to the present clause, but in Vietnamese (5.a) the new noun phrase would replace the pronoun.

Also in (5) the universe of possible times in Greek is contracted to an obligatory affixal set of six (pres., fut. imperf., aorist, perf., pluperf.). In Vietnamese the possible times are contracted to an optional set of three (sẽ 'future or uncertain', đã 'already', đang 'currently'), which remain full phonological words, not affixed to the verb. In English (5.b) the past tense has been drawn into and swallowed up by the verb (the 'black hole' effect).

Uncontracted open classes remain in their normal positions, unattracted by the core:

- | | | | |
|-------|---|------------------|------------------------------|
| (7.a) | Ngày mai người đó
tomorrow person that | thấy.(Vn)
see | 'tomorrow that man will see' |
| (b) | That man will see tomorrow. | (Eng) | 'id.' |
| (c) | Blepsei anthrōpos ekeinos epaurion.
will-see man that tomorrow | (Gk) | 'id.' |

In Vietnamese (7.a) the general time indicator (đã, etc.) usually disappears when a more specific one is present. In Greek (7.c) the obligatory general time and general subject remain even when more specific times and subjects are present. In English (7.b) the obligatory general time remains, but the general subject is replaced by the specific subject.

In a number of Amerindian languages the object, as well as the subject, has been drawn into the verb. This usually involves pronouns, and sometimes simple nouns (8), rarely compound nouns.

- (8) Nahuatl (Uto-Aztecan, Mexico)
 Ø - neč - pa? - maka - Ø - k 'he doctored me'
 3s 1s medicine give past sg

In the noun phrases in (6) Greek has attracted and reduced the universe of numbers to two items (sg., pl.), and the presence of one of them is obligatory on every noun. Vietnamese number has not been drawn into the noun, and the class remains open and optional. English number has been drawn into the noun and reduced to two items, like Greek. The case marking (genitive, possessive) is attracted and obligatory in Greek, in English it is not attracted but is obligatory, and in Vietnamese it is not attracted and is partly optional (i.e., it is optional in some contexts but preferred in other contexts).

- (9.a) của nhiều người (Vn) 'of many people'
 poss. many person
- (b) of many people (Eng) 'id.'
 poss. many person-pl
- (c) anthrōpōn pollōn (Gk) 'id.'
 person-pl.-poss. many-pl.-poss

In Greek (9.c) the general number and the case marking are repeated on the specific number word (so that number is stated three times in two words!). In English (9.b) the general number is retained on the noun, but the specific number is separate. In Vietnamese (9.a) a general number is simply replaced by a specific number.

The phonological structure of Vietnamese helps to counteract the gravitational pull. The fact that the syllable and the foot are essentially the same unit leaves no room for reducing one syllable to being an affix on another. Vietnamese is an extreme monosyllabic language.

The grammatical structure of Chrau, a Mon-Khmer language of Vietnam, is quite similar to that of Vietnamese. But in Chrau, although there are a few true prefixes, there are no suffixes. The structure of Chrau won't permit the genitive de ~ je to become a suffix on the noun it follows, but the gravitational pull of the noun is shown in the assimilation of the first consonant of the genitive to the articulation of the final palatal consonant of the noun: něh de 'his', pôp de 'brother's', ăn̄h je 'mine'. This is one of the rare cases of conditioned allomorph variation in Chrau.

3. Phonological attraction

The phonological structure of languages with feet of clearly heavy and clearly light syllables aids the gravitational pull of

the grammatical core. Chrau, like many Mon-Khmer languages, has a foot composed of one or two syllables, the last syllable being very strong, and the first being very weak with only a neutral vowel and with reduced consonant contrasts. And the strong syllable tends to get stronger, while the weak syllable tends to get weaker. This is again the "black hole" effect, in which the strong syllable draws the weak syllable in until it is lost inside the strong syllable. The Mon-Khmer family of languages seem to have gone from polysyllabic structure to CVCVC to CaCVC to CCVC to CVC, the end result being exemplified in Vietnamese.³ Mñong Rlām has almost reached monosyllabicity. Chrau affixes and other first syllables are disappearing. Other languages without such a strong contrast between syllables might be expected to attract and retain affixes. (Note the discussions along these lines in Stampe 1978 and Donegan 1978, contrasting Mon-Khmer and Munda trends.)

Gravitational attraction in phonology would seem well attested. I have not yet found, or even been able to envision, centrifugal repulsion in phonology,⁴ but it may possibly exist somewhere.

We have tried to show that there are forces of both physical attraction and physical repulsion operating in language, with smaller items and classes being attracted and larger items being repelled. This is one of the factors that makes grammatical segmentation a messy business. Ideally we would like to see semantically phrase material nestled neatly in its proper clause slots, and sentence material placed outside the clauses. But in practice we often see things like subjects (noun phrases) drawn into the verb, numbers drawn into the noun, and inter-sentence relators drawn into the clause. And on the other hand, lengthy items are often pushed out of their normal position to a peripheral position. This may be one of the major causes of difference between semantic and surface structure.

Footnotes

¹An earlier version of this was presented at the SIL Colloquium at the University of North Dakota, June 1979. I am indebted to Hu Matthews, John Clifton, Don Frantz, and others for helpful comments. Don Frantz has suggested that orthodox clause union (in relational grammar) may be a case of a main clause swallowing up a subordinate clause.

²Dai Chin data kindly provided by Helga Hartmann, Oct. 1978, Thai data from Pensiri Swastham, Oct. 1978, Nahuatl data taken from Merlan 1976.

³R. S. Pittman has pointed out to me (April 1979) that contraction to monosyllabicity often tends to be compensated for by an increased use of doublets and other stereotyped expressions.

⁴Mutual repulsion of two strong syllables producing epenthetic vowels would not be centrifugal.

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TWO ALGEBRAIC MANIPULATIONS
AND THE
ENGLISH GREAT VOWEL SHIFT

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The last two decades or so have seen some important and strikingly interesting changes in linguistics. Generative-transformational grammar came out of MIT and achieved political dominance in the profession. One result was a kind of academic gnosticism, the claim that the willful choice of right thinking would yield some desired end -- truth, membership in a political elite, or access to research money. For a very few years this theoretical position was internally homogeneous and was able therefore to hold itself out as a kind of orthodoxy. Soon, however, sectarian divisions arose within it, destroying the homogeneity and fracturing its monolithic political character. All the while, other theories and other approaches informed studies which were carried on outside the dominant orthodoxy. But within the last five years, perhaps even longer, the dominance enjoyed by generative-transformational grammar has evaporated. None of the other theories or approaches has moved into what political scientists call the "power vacuum," however. At present no single theory commands the loyalty of a majority of academic linguists. Indeed, no scholarly consensus now exists on how to "do linguistics."

The contention advanced here attributes that state of affairs to several causes. The most significant seems to be the continued insistence by language scholars on treating language as though it were a phenomenon unique in every way. This approach seems to be an error. Language is a particular kind of coding system used by human beings. (The question of other species' access to language is best left alone as irrelevant to the concerns of this paper.) That distinctiveness has been allowed to blind us to certain aspects of biological evolution as understood widely today. The aspect significant for our purposes here treats the rise of new biological ways of doing things, e.g., new species, new behavior patterns, etc., as new combinations of older patterns. That is, biological novelty seldom, if ever, means discontinuity with previously established solutions to problems. Thus, arms, forelegs, and wings share an evolutionary history. Or again, human vision is seen as a unique realization of the mammalian eye but as an instance of the mammalian eye nonetheless.

Linguists are wont to make analogous statements. For example, they remind inquirers that speech makes use of apparatus designed for other purposes -- breathing, eating, etc. Yet, when thinking about language, the potential connection or continuity

with other kinds of mental activity is forgotten. If we think of language as a device for coding meaning, the possibility of such connections with other processes in the central nervous system seems quite clear.

The proposition put forward here is this: just as students of the human eye can learn about its workings from comparative studies of other mammalian eyes, it seems likely that linguists might well learn about language from comparative studies of other coding mechanisms within the central nervous system.

This view might be put in yet another way. Our knowledge of the world is extensive and often woven of the same thread. That is, much of what we know extends across a variety of disciplines and deals with many problems as variants of single, more abstract problems. One realization of this situation is the use of mathematics to treat such diverse topics as the paths of ballistic missiles and economic cycles. The material is taught as a way of dealing with abstract entities, in this case curves. We talk about the wide usefulness of mathematics and cite as an example the utility of knowledge about curves in attempting to understand such widely disparate phenomena as ballistic missile paths and the ups and downs of economic activity. Moreover, the relevance of mathematical knowledge is so widely and well understood that it has become part of the tacit body of assumptions underlying the conduct of certain kinds of scholarly inquiry.

The situation with language stands in marked contrast to this state of affairs. Language is treated as though it had no relation to the rest of the world or to our knowledge about the rest of the world. The contrast suggests the wisdom of changing our plan of attack and beginning to think of language as part of the world. From that perspective we can begin to ask what knowledge we have from other areas of study that might be relevant for linguistics.

The approach taken in this paper links the study of language with the study of the human cognitive apparatus. Moreover, certain aspects of cognition and, by definition in the terms used here, of language are formalized by means of conceptual equipment drawn from yet another discipline, namely that branch of mathematics known as linear algebra. While the focus of this study is phonology, it seems clear that other facets of language, e.g., syntax, can in principle be treated in the same kind of broad perspective.

Though linear algebra is the source of the conceptualizations used in this piece, other possible sources remain untapped. For example, bringing to bear on language problems the insights of studies in perception, of semiotic approaches, of various communication or system theories, seems to offer some promise of new light, if not resolution. Looking at any or all of these

possibilities -- and such others as come to other investigators' minds -- is highly to be commended, particularly in view of the intellectual disorder that prevails today in the discipline.

Let us turn now to an exposition of the particular ideas presented here.

I

As noted above, this study's focus is phonology. In an earlier paper (Pia and Storm 1979) we showed how the particular combination of ideas we selected produces for certain problems, e.g., vowel reduction in Russian, solutions of greater interest and satisfaction than those provided by the theoretical equipment currently available. In this paper the aim is to enlarge and enrich the perspective presented in that earlier study. Of course, the claim does not vary: certain problems which have been resistant to solution now respond in an intuitively satisfying way. Evidence in favor of the claim is offered by an example case.

The perspective adopted is an algebraic one. That is, the notion of mental spaces is taken together with the idea of manipulating vector spaces according to the canons of linear algebra. The manipulations are known as transformations. This paper adds to the transformations cited previously two more: (1) bifurcation and (2) inverse transformations. The example case is the Great Vowel Shift of English, an example which both demonstrates how the new items work, on the one hand, and shows their efficiency, on the other.

A

In that earlier paper we introduced the notion of the algebra of vector spaces, and we argued for its status as a linguistic universal.

The argument is based in part on some ideas implicit in much cognitive psychology and psychophysics. For example, it seems clear that organisms use "internal" or mental spaces in such processes as locating auditory stimuli in the external environment. Extending the use of such spaces to studies of language seems well within the realm of plausibility.

We might characterize or describe the processes which employ spaces as follows. In very general terms the processes are (1) coding and (2) mapping. Whether these are in fact two facets of the same process is not yet clear. For present purposes, however, the term coding refers to the putting of information into or onto a mental or cognitive space. The information can come from at least two sources, (a) from storage or (b) from the sensory apparatus as a consequence of temporally immediate experience. In the case of storage the information is the result of previous experience or inherent knowledge. Once the information is in or on a space, it can be mapped onto neural sequences

that ultimately give rise to behavior observable by other organisms.

It is possible, further, to imagine a series of intermediate spaces, with mappings from one space to another in some well defined sequence. As of this writing the developing conceptualization suggests that such an arrangement of intermediate mappings holds for speech. That is, phonological information appears to be mapped onto cognitive spaces early on. That information is in turn mapped onto an articulatory space or spaces which finally serve to drive the neural networks and sequences which lead to phonation.

Nothing appearing in the literature since the earlier study (1979) weakens this claim or contradicts the very general scheme sketched out here. It may stand, then, as a hypothesis which may guide further investigation and which may be refined as research proceeds.

B

A review of the example case of the 1979 study reminds us of the effectiveness of these proposals. Under maximum stress Russian exhibits five vocalic contrasts on the surface. When the stress is reduced, the five vowels "reduce" to three, with /e/ going to /i/ and /o/ to /a/. Linguists intuitively feel that the "reduced" or missing vowels are subject to the same process. However, all of the currently available theories require each vowel to be treated as though they are subject to independent processes. The problem was handled by a function whose effect was to rotate the phonic space such that the five vowels were reduced to three. Moreover, both /e/ and /o/ were removed from the inventory of contrasts by a single manipulation thereby corresponding to the intuition that both vowels should be treated in the same way.

The rotation function was only one of several transformations presented in that study. We gave examples also of other effects achieved by additional transformations: shrinking a space, stretching a space, and translation or the moving of one set of points on a grid to another. In the conversations which followed the presentation and the formal question period, Carleton Hodge showed us that the Bulgarian vowel reduction scheme could also be handled by this general approach. In that language the inventory of contrasts is reduced by eliminating the non-high segments except schwa, such that /e/ becomes /i/, /o/ becomes /a/, and /a/ schwa. The transformation employed seems to be translation.

With the Bulgarian example our case is certainly strengthened. Further, with this review completed we can turn now to the two additional transformations put forward here and to our example case.

II

The example, the English Great Vowel Shift, shares certain properties with the Russian vowel reduction problem. We remember that the long front and back vowels both seem to be moving "up" around the periphery of the vocalic space toward the highest most front and most back points while the segments formerly occupying those points appear as glides preceded by /a/. As with the Russian data, the linguist feels that all the moving vowels are reflecting a single process at work, but the mirror image quality of the shifts defies satisfying description in any of the currently available theories. Indeed, each shift must be handled independently as though each vowel were treated separately by the native speakers. What is needed is a principled approach which treats the entire vowel space in a uniform and direct way.

The transformations, bifurcation and inverse transformations, seem to do just that. The discussion proceeds now with a look at each.

A

The space in question is defined by two axes. The vertical one is assigned values on a scale of HIGH-LOW, while the horizontal gives FRONT-BACK values. Points in the space are identifiable by a pair of correlates, e.g., $x=3$, $y=5$. Information is coded onto various points on the space. In the case of phonological information the relationship among the points, a distance relationship, is part of the information.

Though it may seem at first blush that the use of mathematical transformations in linguistics is introducing the esoteric and exotic, such is not entirely the case. For example, linguists are familiar with the notion of the ordering of rules. That same principle obtains here: bifurcation must be executed before the other transformations.

Bifurcation refers to splitting a space into two parts. While any kind of split is in principle possible, for these purposes the space is divided in half along the vertical axis such that each space is bounded by the vertical axis. Figures 1 and 2 show the original space and the resulting bifurcated spaces.

B

In the space whose horizontal axis gives FRONT values, the same kind of transformation is executed as was employed in the Russian vowel reduction problem: it rotates the space in a clockwise direction. In the space which assigns BACK values, an inverse transformation is executed, one which rotates the space in a counter-clockwise direction. Figures 3 and 4 show the effects of these transformations.

The term "rotating" is used here metaphorically. The effect

of rotation is achieved by means of functions which, first, "lift" information from points in a space and, then, map the information back onto other points in that same space. That is, information is mapped from a set of points A to a set of points B in the same space. When dealing with phonological spaces, the spatial relationships among the points are held constant since those relationships carry still other information.

An example of this type is the Russian vowel reduction problem. In that case the information was lifted, in a metaphorical sense, from the space and mapped back onto itself. The /e/ and /i/ information was mapped back onto the /i/ point while the /o/ and /a/ information were mapped back onto the /a/ point. We might say that /e/ was mapped back onto the point previously occupied by /i/; the same for /o/ and /a/. The effect is to merge /e/ with /i/ and /o/ with /a/ by rotating the space.

It is also possible to change the relationships among the points, or at least appear to do so, by changing the labels of the second, or B, set of points. The English Vowel Shift may well be an example of this sort. Discussion moves now to that Vowel Shift problem where this and other matters are illustrated.

C

In the space whose horizontal axis gives FRONT values the transformation in question maps information from a set of points A to a set B, as noted above in a clockwise direction. Hence, the information from the point labelled /ā/ is moved to that labelled /ē/, while the information from /æ/ and /ē/ is moved to /i/. After the moves are made, the points are given new labels. Thus /ā/ becomes /ey/ and /ē/ becomes /iy/, yielding new English names for the letters of the Roman alphabet.

In the space with BACK values the inverse transformation is executed, thus moving the information in a counter-clockwise direction. The mapping function moves information from /ō/ to /ū/ and from /ō/ to /ū/. The label change appears in the assignment of the pronunciation /uw/ to the spelling oo, as in boot.

In both spaces the transformations move the high vowels along the central axis to the LOW region. The outcomes, of course, are the rise of the diphthongs /ay/ and /aw/ for what had been /i/ and /ū/.

Now, such intervening stages as there were, e.g., from /ā/ to /æ/, can be handled by the same principles. The notions of multiple application and ordering of rules taken together with a rough analog of context sensitivity may be needed for the specification of certain details. Working out these matters is properly the topic of another paper.

D

The material presented above seems to make sense and to show that this scheme works. One of the tests, however, of any proposal is its ability to make suggestions for the resolution of problems that it was not designed specifically to handle. One issue that may be clarified by this approach is that of the rise of EMnE diphthongs /ay/ and /aw/. Two proposals have been offered for the change of /ī/ to /ay/. One suggests that the route of change went along the periphery of the vowel space but in a direction opposite to that of the rest of the shifts. Thus, according to this proposal /ī/ became /ey/ at some point in time on its way to /ay/. Several objections can be raised to this view, e.g., the /ey/ from /ī/ and the /ey/, spelled *ai*, from /ā/ would be indistinguishable. They ought, therefore, to have the same history after that stage. However, forms from LME /ā/ and /ī/ have quite distinct later histories. It follows that the items in question were never indistinguishable. Despite this chain of reasoning, Wolfe (1972) points out that evidence exists in favor of the peripheral route hypothesis.

The other proposal has /ī/ becoming first schwa-/y/ and then /ay/. The approach adopted here, an approach which metaphorically rotates spaces, appears to tip the scale toward this proposal. Moving the high vowels down along the vertical axis toward LOW suggests a central rather than peripheral route of change.

The apparent ability of the approach put forward here to contribute to the resolution of a problem it was not designed to handle surely meets one criterion of a viable theoretical proposal. However, emphasis must be put on the apparent nature of the contribution. The conceptualization put forward here is far from mature or well developed. Indeed, there are premonitions that the description of the high vowels moving down the vertical axis may be all too simplistic, that what happens to the high vowels may be both more complex and interesting, on the one hand, and quite irrelevant to the question of the pathway of change, on the other. Consequently, scholars are probably well advised to continue to rely on other data and arguments to settle this question. Such admirable caution will not, however, inhibit the present writer from offering proposals or making claims, as responsibly provocative as possible of course, for critical examination by his colleagues.

III

Despite any wariness regarding the details of what is offered here, it seems clear that an algebraic approach, one based on the manipulation of vector spaces, is promising. That perspective makes available accounts of synchronic processes as evidenced by the Russian vowel reduction problem. In addition, an enriched and enlarged repertoire of transformations has provided an attractive solution to the mirror image difficulties presented by the Great

Vowel Shift of English, thus giving an account of at least one diachronic process. The ability to deal with both kinds of processes conforms to our intuition, captured also by other theories of course, that synchrony and diachrony are cut from the same cloth. We can hope, further, that our understanding of each kind of linguistic change over time, or of synchronic alternation, will be enriched and refined as the conceptual framework of space manipulation is worked out in increasing detail and precision.

An attractive aspect of this perspective is that it does not require any substantial change, if any change at all, in the prevailing view of human cognitive abilities. The claims made here rest on the ability of humans (1) to recognize and distinguish points in a space and (2) to manipulate such spaces as integrated units, as vector spaces. In addition, for the present the manipulators of the spaces are equated with the linear transformations known so well to algebraists.

With these assumptions in hand it is possible to claim that the linear transformations explain -- directly and uniformly -- changes from one vocalic inventory to another. The claim holds whether the change under study is synchronic or diachronic. The Russian or Bulgarian vowel reduction schemes are clearly synchronic changes. The English Vowel Shift exemplifies a diachronic change within one language. Changes from one language to another, e.g., Latin to French or Spanish, remain to be looked at from this perspective. There is no reason at this point, however, to suppose that such sets of changes are different in principle from the kinds of change seen here.

The claim that changes from one vocalic inventory to another can be explained by means of linear transformations requires, as noted above, only that vocalic inventories be interpreted as sets of points distributed in well defined vector spaces which possess the usual mathematical properties. The strength of these proposals seems so clear as to suggest that any list of linguistic universals must include the capacities outlined here, e.g., to deal with and manipulate vector spaces.

In addition to the advantage of providing explanations of difficult phonological processes this approach offers yet another, one related to the concerns with which this essay began. That is, taking an algebraic perspective moves the study of language out of its isolated corner of the intellectual world and into a much broader arena, namely the study of human mental processes in general. That move brings to hand for the purpose of linguistic studies a sizable range of logical and conceptual equipment which previously has been inaccessible to linguists. Or, if the equipment can be said to have been available in principle, it was unusable because of the way language studies have been defined.

Looking at our studies from this new vantage point allows us to see connections which in former times remained either invisible or obscure at best. Now we can begin to see the good sense inherent in viewing language as an information processing device, on the one hand, and as part of the human perceptual and cognitive apparatus, on the other. Moreover, looking at language as a code with some unusual properties can also be revealing.

Finally, this approach to language studies opens our hypotheses to test in a wide range of disciplines and across a broad spectrum of phenomena. Such can only be good for linguistics.

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FIGURES

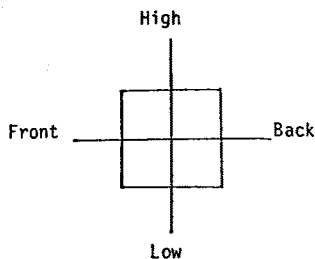


Figure 1

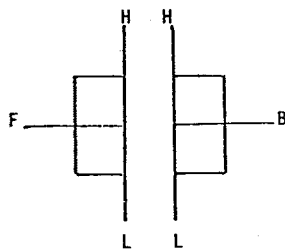


Figure 2

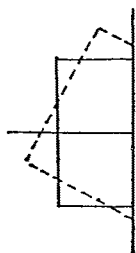


Figure 3

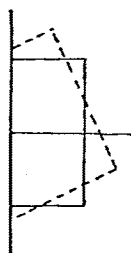


Figure 4

STYLE AS MEANING

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We won't engage here in the meaningless pedantic exercise of providing this audience with a survey of the extant literature on the subject of semantics/meaning because such an attempt to establish our right to say what we are going to say would bore most of us. Those who define semantics as "the study of meaning" constitute a majority of past and contemporary linguists, although there are isolated people who have equated something they call "surface meaning" with style. Jacobs and Rosenbaum (1971), for example, distinguish between basic and surface meaning, and define surface meaning as that which is "treated in stylistic rather than grammatical analysis" (p. 7). Their "basic meaning" is what we would prefer to call "semantics."

Our aim in this paper can be simply, if not modestly, stated: We propose that linguists stop defining semantics as "the study of meaning"; we will offer for your examination a range of well-known data which suggest that semantics and meaning are two distinct phenomena; we will conclude, on the basis of the data, that linguistic terminology be revised by separating these terms and their designations, using semantics to refer to those features that determine the internal relationships of lexical items in a language, and meaning to refer to the possible readings, or interpretations, that are the result of surface structure position (word order). The widespread error of identifying "possible readings" with "semantic structures" has led linguists to make false claims about our ability to describe language, and it has turned so-called "formal" theories of language into hastily-constructed patchworks that account for nothing by trying to account for everything. While we cannot hope to disprove the claims of those who equate semantics with meaning, nor prove conclusively our claims with respect to their erroneous applications, we can describe some of the data that have suggested the necessity of a distinction to us, and we will try to mention briefly, at the end of this paper, some of the extensions of our position of which we are aware.

In addition, we will not attempt to exemplify our restricted notion of the domain of semantics, beyond pointing to already existing studies that utilize the concept of semantic fields, e.g., color terms, number systems, kinship systems. Although such studies have been concerned primarily with noun classifications, the approach can be usefully extended to the study of verb classification. Thus, when we refer to semantics, we have in mind something like semantic fields, described in terms of the parameters that

separate one semantic class from another. This description raises the issue of "atomism" yet once more, and we are willing to argue that semantics will be "atomistic" to some extent. If our suspicions are correct, semantics will prove to be relatively more stable over time than meaning, and will, therefore, be more predictable, while meaning, although describable, is not always predictable, even in the data we will be discussing, and is more bound to situation and context. In short, we are proposing that linguists redefine meaning as that area of language usually referred to as "style," or "language use," and our subsequent discussion will focus on isolating the domain of meaning rather than describing a theory of semantic structure.

The earliest work, as far as we know, that dealt explicitly with differences of meaning that are the result of syntactic position was Bolinger's 1967 article, "Adjectives in English: Attribution and Predication," and we would like to discuss this article in some detail, not only because of its significant contributions to our own thinking, but because it is among the most thorough-going examinations of a linguistic problem that actually uses language evidence in its arguments.

In that article, Bolinger began by examining pairs of sentences that contained the same modifier² in pre- and post-nominal position, e.g.,

- (1) a. The only river navigable is to the north.
b. The only navigable river is to the north.
- (2) a. The jewels stolen
b. The stolen jewels

He observed that the modifiers in post-nominal position tend to have the characteristic [-characteristic] (or [+temporary]), and are therefore predicative, while those in pre-nominal position have the feature [+characteristic] (or [+permanent]), and are therefore attributive.³ (The terms attributive and predicative of course go back at least to the notional grammarians, but we believe this particular extension of them is Bolinger's.) The purpose of his discussion of the difference in meaning between the jewels stolen and the stolen jewels is not, however, to draw our attention to the fact that the difference in meaning derives from the difference in position with respect to the noun-head, but to argue that the relative clause transformation fails to account for many attributive adjectives because it creates ambiguity rather than clearing it up. As he stated the problem, "If we derive the stolen jewels from The jewels are (were) stolen we therefore not only derive a less ambiguous construction from a more ambiguous one but, since the jewels stolen is supposed to be an intermediate step on the way to the stolen jewels, we get the illogical sequence + characteristic → - characteristic → + characteristic" (p. 3). His reasoning is that since The jewels are (were) stolen is ambiguous as to whether or not the participle

stolen is to be interpreted as attributive or predicative, the transformational derivation of the stolen jewels from a relative clause, The jewels are (were) stolen, by means of an intermediate step, the jewels stolen, requires us to derive an unambiguous pre-nominal modifier from an underlying clause that is ambiguous. Furthermore, by positing that pre-nominal modifiers are interpreted as attributive and that post-nominal modifiers are predicative, Bolinger concludes that it is "illogical" to derive a modifier that has the feature [+characteristic] from an underlying stage in which the modifier is [-characteristic].

Two questions regarding Bolinger's assumptions arise. First, can we predict the pre-nominal modifiers are always unambiguously attributive, and that post-nominal modifiers are unambiguously predicative? Second, if we speak of modifiers in pre-nominal position as [+characteristic], and those in post-nominal position as [-characteristic], are we really talking about semantic features? That is, even if we can demonstrate that the proposed interpretations are consistent, rather than idiosyncratic, are we in fact dealing with inherent semantic features of the modifiers in question? The examples below show that there is, indeed, some consistent relationship between our interpretation of a modifier as + or - characteristic and its position with respect to the noun head.

- (3) a. Fried chicken would be better. [+char]
b. Chicken fried would be better. [-char]
- (4) a. Running water bothers some people. [+char]
b. Water running bothers some people.⁴ [-char]
- (5) a. I like to wake up to singing birds. [+char]
b. I like to wake up to birds singing. [-char]
- (6) a. The used car was in bad condition. [+char]
b. The car used was in bad condition. [-char]
- (7) a. The opened door made us more comfortable. [+char]
b. The door opened made us more comfortable. [-char]

Now, while not everyone will agree unanimously on the interpretations for all of the examples, they do seem to provide additional evidence for Bolinger's analysis. The sentences in (4), for example, may not strike some speakers of English as essentially different, but we, at least, can interpret running water as meaning something like 'water that has the characteristic of always running', and water running as 'water that happens to be running at a particular time'. So, too, with fried chicken and chicken fried, where the former is chicken that has already been fried, and the latter is chicken that has not yet been fried. This particular pair, in fact, suggests that what we may be looking at is not so much a matter of meaning determined strictly by position per se, but a difference between a marked meaning and an unmarked meaning signaled

by syntactic position. Although Bolinger's discussion of similar contrasts in meaning in his data suggests this possibility, he does not explicitly characterize the distinction as one of syntactic markedness.

Other examples, however, as with the fried chicken/chicken fried pair, suggest that, while we may not always be looking at a contrast between + and -characteristic, we are, nevertheless, confronted with a difference in meaning that is contrastive. The following pairs of sentences illustrate a contrast in meaning that is not necessarily best described as "temporary" versus "characteristic."

- (8) a. They painted their light-blue bedroom.
b. They painted their bedroom light-blue.
- (9) a. I pictured the green car.
b. I pictured the car green.
- (10) a. I made my wool sweater.
b. I made my sweater wool.
- (11) a. I found this navigable river.
b. I found this river navigable.
- (12) a. These criteria should apply to the interviewed applicant.
b. These criteria should apply to the applicant interviewed.

The contrasts exemplified in these pairs of sentences are not uniform. In (8), for example, the position of the modifier light-blue indicates that a distinction is being made between a bedroom that was originally light-blue and one that was not light-blue to begin with that is now light-blue. In (9), the contrast is between a car that is actually green and one that was imagined to be green. The contrast in (10) is one of particular interest because it affects our interpretation of the verb made. In the first sentence the speaker is asserting agency in the creation of the sweater; in the second sentence, we are being told that wool is the material out of which the sweater was made. The sentences in (11), using the modifier navigable, turn up a different kind of contrast than the examples used by Bolinger, in that in this instance navigable in prenominal position again signals an attribute, but in post-nominal position part of the interpretation, in addition to that of temporariness, is that I was able to navigate the river but others may not be able to (or find it so). The examples in (12) illustrate yet another possibility, a contrast involving a time dimension other than temporariness. That is, interviewed applicant, although ambiguous, may be interpreted to mean that some applicant has already gone through the interviewing process, while applicant interviewed implies reference to some as yet unknown applicants who will be interviewed at a future date. These sentences add further possible contrastive interpretations to the pre- and post-nominal modifier positions: change-of-state, contrary-to-fact, future possibility,

and, perhaps, some implication of a "hedge" (as in (11) b).

These pairs of sentences do not seriously call Bolinger's analysis into question; rather, they extend it to include other kinds of meaning contrast. Our point here is to suggest that, because the meaning contrast is not as predictable as Bolinger's data suggest, we are dealing with a more general, if less fixed, phenomenon, and that the pre- and post-nominal positions of modifiers represent unmarked and marked syntactic signals, respectively. The ambiguity of interviewed applicant, noted earlier, also indicates that a less restricted analysis of these positions would be more accurate.

Additional problems in describing English syntax may now be cast in a different light, especially those accounts that are qualified by statements such as "Of course, my interpretation of these sentences reflects only my dialect, idiolect, etc." Such caveats should immediately tell us that we may be looking at a difference in meaning, or "style," rather than a structural property true of the English language as a whole. The absurdity of trying to account for a meaning *per se* in underlying structure becomes even clearer when we consider the proposals and counter-proposals for describing the meaning-change of quantifiers under passivization, a phenomenon referred to as "quantifier scope." Briefly, many linguists and philosophers have noted the erratic behavior of quantifiers. These linguistic items apparently "change meaning" in different positions in a sentence, and have different meanings in paired active and passive versions of a sentence. An examination of a variety of active/passive pairs with quantifiers will show, however, that the observed change in the scope of the quantifier is neither systematic nor, as a result, predictable.

- (13) a. Everyone in the class has read at least two books.
 b. At least two books have been read by everyone in the class.
- (14) a. Many people have read a few books.
 b. A few books have been read by many people.⁵

As these examples show, the passive transformation apparently affects the interpretation of the quantifier that accompanies the fronted object, but this putative "change of meaning" is highly unpredictable and speaker perceptions of the change are by no means unanimous. As G. Lakoff (1971: 238) admits in an early footnote to his article, interpretations of such sentences are "subject to dialect variation." Our analysis suggests that, while we may be looking at phenomena that do reflect "dialect variation," the phenomenon of "meaning change" itself can be more generally described as a result of syntactic position rather than postulating alternative abstract underlying structures for each of the paired sentences. In the sentences in (13) and (14), for example, the

quantifiers at least two and few apparently become ambiguous (or *moreso*) in the passive versions; for some speakers the active versions are unambiguous, while for others the passives aren't ambiguous. G. Lakoff (1971) has suggested that this change in meaning is a semantic problem and that it is most accurately described by positing two different underlying structures, one for the active and one for the passive, in which scope of the quantifier is accounted for by its position in the phrase marker. The "semantic interpretation" in a given sentence is then described in terms of which quantifier commands the other in the deep structure, i.e., the quantifier that is the highest predicate. But this seems to be yet another linguistic phenomenon that has erroneously been labeled "semantic" as a result of conflating the terms semantics and meaning, and this confusion has led linguists to propose accounts for differences by postulating deep structures that are unnecessarily complicated and that, in fact, obscure relationships between sentences rather than illuminate them. Quantifiers do not radically alter their semantic import from sentence to sentence; if they did, their behavior would be so idiosyncratic as to defeat any attempt to account for them systematically. On the other hand, our interpretations of them do differ from one sentence to another, depending upon their position in a given sentence. In some cases, the active or passive version strikes some speakers as more or less ambiguous, while other cases suggest that quantifiers are more specific in passive sentences than in actives. It would seem more economical and more descriptively accurate to regard the change in quantifier scope as a result of the passive transformation and object-fronting, as a "use-rule," rather than proposing semantic representations which imply that the quantifier itself has somehow changed.

Other linguistic problems that can be looked at this way include focus roles (for which Chomsky [1971] has suggested a second set of projection rules!), Hasegawa's proposal that the copula of the be-passive and the existential be be derived from different underlying structures (and R. Lakoff's [1971] extension of this principle to include the get-passive), etc. All of these phenomena reflect the fact that, in English, function is a result of surface syntactic position, and interpretation is based on position. The situation is analogous on some levels with problems of labeling NPs as "subjects" in some sentences and as "objects" in other sentences. Clearly, subject and object are not deep level categories of the language. That is, we would not want a grammar that specified subject or object as semantic entities; it would not only complicate a grammar, it would be inaccurate descriptively. We would be overlooking an important generalization about the syntactic structure of English, that "subjects" and subject-like NPs tend to occur before the main verb, and objects and object-like NPs occur after the verb. Likewise, focus (or theme) seems to be the result of fronting an NP, and is, therefore, a matter of interpretation, or meaning, rather than semantics. From this perspective, linguistic phenomena such as focus, topicalization, quantifier scope--in short, any interpretation derived from surface position--are stylistic, rather than purely grammatical, phenomena.

Endnotes

¹ One possible implication of our suggested distinction is that so-called "semantic" change can no longer be regarded as "meaning change," although the two might still be linked as distinct functors in related processes, i.e., meaning change may be a synchronic, situational phenomenon that contributes to or instigates semantic change over a period of time. That is, perhaps semantic change occurs as the result of consistent shifts in use under specifiable syntactic conditions, in which case the semantic range of a given term may narrow or become extended, while meaning change is the result of syntactic transformations in a specific context.

² Although Bolinger used the term adjective in his article, we have chosen here to use the more general term modifier because adjective carries the sense of designating a category item rather than a purely syntactic function, and we don't want to confuse category with function as others have done. Thus, although the verb participle stolen certainly modifies jewels in Bolinger's examples, we would not agree with the lexicalists that it is, therefore, a member of the category "adjective."

³ Although we accept, for our purposes in this paper, Bolinger's characterization of these modifier functions as "attributive" and "predicative," we would like to note that these labels confuse function with "feature" and lump together several different types of modification that require further elaboration.

⁴ Some of these examples reveal what could be evidence for nominalizing transformations because there is a second reading for Ringin' bells remind me of my childhood if it is a nominalized clause and the verb is singular, reminds. If the surface structure is Ringin' bells reminds me of my childhood, the NP is stressed differently and is interpreted as 'the act (on my part) of ringin' bells'. The same observation can be made with respect to runnin' water as an NP, although the surface form of the verb is the same in every example. Thus, water runnin' is 'water that is now in the act of runnin'', runnin' water can be interpreted as 'water that some agent causes to run for some period of time', or, as a nominalization, 'the specific act of some agent causing water to run'. We would maintain that such examples indicate that, beyond our point here regarding such phrases as evidence that meaning-change is distinct from semantic change, the possible readings clearly require the possibility of a transformational account that explains the difference in stress assignment for the nominalized readings.

⁵ The problems with the unpredictability of the meaning-changes in these examples were brought to my attention by Mary Tait in a presentation made to a class in semantics.

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THE LOCUS OF METAPHOR IN FRAME-DRIVEN TEXT GRAMMARS

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The most important task of human and computer discourse systems is the use of context to resolve ambiguity. From an information processing point of view, no contemporary linguistic theory or artificial intelligence model is able to account for the human ability to resolve ambiguity on the basis of context at the speed at which human language processing takes place. It is typical of computer models, including models embodying particular linguistic theories, that as the size of the data base increases, the ability of such systems to provide unique resolutions of ambiguity on the basis of context decreases. At the same time, the processing time required to resolve or attempt to resolve such ambiguity increases exponentially, or worse, with increases in the size of the data base. The problem has plagued natural language processing work since the early days of machine translation. The classic statement of the problem as formulated by Bar-Hillel (1960) remains unchanged. Current research has accepted Bar-Hillel's challenge to incorporate world knowledge as part of the data base, but the problems of ambiguity recur as the size and heterogeneity of that data base approaches the encyclopedic content demanded.

Linguistic theories do not necessarily fall because of their pragmatic implications for computer models, and artificial intelligence research has not been affected because the theory and pragmatics of that field are merged in the construction of small, automated models which, because of their limited size, function with subjectively interesting, if non-extendable, results.²

The text grammarian movement has arisen among European linguists as a reaction to the failure of sentence grammar theories. As its name implies, its theoreticians incorporate macro context to handle linguistic problems, and they emphasize the importance of world knowledge as part of the data base for linguistic and computational linguistic models.³

The term 'frame' in artificial intelligence research is attributed to Minsky (1975). It can be applied to a set of propositional rules that describe an organized segment of world knowledge. The term is approximately equivalent to the notion of 'scripts' as used by Schank and Abelson (1977). While frame models are used in several contemporary fields⁴ to represent world knowledge, V. Propp must receive credit for the first 1st-order predicate calculus model of a frame-driven text grammar (1928).

In a frame-driven text grammar, the resolution of ambiguity is associated with the identification of relevant frames in combination with accurate determination of frame variables. The organization of such a grammar presupposes that every lexical item is linked to every concept it might represent, and that every concept is linked to every frame that might reference it. As the size of the lexicon increases, and as the number of frames and concepts increases, the resolution of ambiguity of reference in text analysis becomes increasingly difficult. The practical experience of text grammar construction has been associated with limited subject matter. The most elaborate automated text grammars have been used in text generation (Klein et al. 1973, 1974, 1976),⁵ which is a simpler task than recognition in terms of ambiguity resolution, although the problems of accurate quantification of frame variables are not avoided.

What does it mean to incorporate world knowledge in a text grammar? Is it possible to describe the world in a finite number of frames in a consistent, non-trivial manner? Ultimately, the task is one of formalizing a person's knowledge of his world in a set of logical constructs that are also part of a generative and recognition grammar. For practical purposes, the universe must be treated as non-finite, but for computational purposes, the rules of the data base must be finite in number. To insure global coverage of subject matter, many of the rules must be formulated at high levels of generality, with propositions using variables that require logical quantification for particular applications to world phenomena. The process of quantification consists of determining which particular facets of the world are to be assigned to the variables in the frame arguments, and maintaining the binding of those assignments during relevant segments of data processing. The problems of logical quantification are the same for generation and recognition; the testing of automated versions of Propp's model for Russian fairytales demonstrated the difficulties that Propp had (Klein et al. 1974, 1976).⁶

At this point, a simple example will be useful. Consider processing of the text:

THE COACH DISPUTED THE UMPIRE'S CALL, BUT THE UMPIRE
REFUSED TO LISTEN.

For our frame-driven text grammar, we shall assume a simple model in a notation related to, but simpler than, the notation of the Metasymbolic Simulation System (MESSY).⁷ We assume the existence of semantic objects, relations and classes. Objects and relations are linked to lexical expressants. Every frame is simultaneously an object or a relation, and a class. Classes may contain objects, relations and classes, and may function as variables. Every class is also an object. The syntax of MESSY defines the appropriate interpretations of these multiply functioning units. The propositions in frames are formulated in terms of semantic triples (including 2-tuples) which consist of ordered sequences of objects and relations, or class variables. Class memberships may be

modified during processing, and units may be recursively defined and expanded, or their interpretation may be limited to their first level significance. All of these units have index links to each of the frames in the data base that reference them.

For the processing of this example, we will reference eight simple and incomplete frames: DISPUTE, REFUSE, LISTEN, IGNORE, UMPIRE, CALL, COACH and BASEBALL-GAME. Classes include:

CLASS ALPHA: judgement, proposal... CLASS TEAM: team1, team2
 CLASS PERSON: person1, person2... CLASS BATTER:
 CLASS PLAYER: player1, player2...

DISPUTE FRAME

D1: person1-dispute-alpha
 D2: alpha-of-person2
 D3: D4 or D5
 D4: person2-reply-person1
 D5: person2-ignore-person1

REFUSE FRAME

R1: person-refuse-give
 R2: give-attention

LISTEN FRAME

L1: listen-be-give
 L2: give-attention

IGNORE FRAME

I1: ignore-be-refuse
 I2: refuse-to-notice

UMPIRE FRAME

U1: umpire-be-official
 U2: official-in-sport
 U3: official-rule
 U4: rule-on-play
 U5: umpire-supervise-game
 U6: umpire-responsible
 U7: responsible-for-conduct
 U8: conduct-accordingto-rule

CALL FRAME

C1: call-be-judgement
 C2: judgement-of-umpire

COACH FRAME

CH1: coach-be-person
 CH2: person-train-player
 CH3: coach-assist-manager
 CH4: assist-in-strategy
 CH5: strategy-of-game

BASEBALL-GAME FRAME

B1: hometeam-take-position
 B2: position-in-field
 B3: umpire-call-B4
 B4: play-ball
 B5: batter-stand
 B6: stand-in-batterbox
 B7: pitcher-throw-ball
 B8: B9 or B10
 B9: umpire-call-strike
 B10: umpire-call-ball
 B11: if B12-then-B13
 B12: strike-be-three
 B13: batter-be-out
 B14: if not B15-then-B16
 B15: out-be-three
 B16: next(player)-cometo-bat
 B17: if B15-then-B18 and B19
 B18: team-retire
 B19: next(team)-at-bat

For the purpose of the example, suppose that the baseball frame has been activated and is "driving" the interpretation of the text. A frame is activated when it is referenced in the flow of processing. When there is ambiguity of reference, frames which

are alternatives to a hypothesized frame must be kept on a list and tested later should the first choice be rejected. Frame activation is important to the disambiguation process. For example, if the BASEBALL-GAME frame is active, an occurrence of the lexical item 'call' will activate the CALL frame about the judgement of the umpire in preference to any other possibility. This call frame is termed a 'local' frame.

Assume a parser has obtained the following triples from our text (THE COACH DISPUTED THE UMPIRE'S CALL, BUT THE UMPIRE REFUSED TO LISTEN.):

1. coach-dispute-call
2. call-of-umpire
3. umpire-refuse-listen

Processing begins with triple 1. The general DISPUTE frame is activated because the BASEBALL-GAME frame does not contain a local instance of a dispute frame. A match is attempted between D1: 'person1-dispute-alpha' and triple 1: 'coach-dispute-call'. 'Coach' is not a direct match with 'person1', but 'person1' is 'person', and 'person' is a superset of 'coach', a condition which is necessary for potential matching. A match results in 'coach' being bound to the variable 'person1' in the DISPUTE frame. The remainder of the match of triple 1 to D1 is analogous, and 'call' is bound to the class variable 'alpha'. The matching of triple 2 to D2 is also straightforward with the result that 'umpire' is bound to 'person2'. D3 is a control triple, and it is interpreted to mean that D4 or D5 must be matched for the DISPUTE frame to remain active. Because a 'refuse' triple is part of the IGNORE frame, a partial match is obtained with D5. The failure to find matches for 'refuse' and 'listen' results in the expansion of 'refuse' as the frame REFUSE, in order to determine if 'listen' can be interpreted as a relational object of 'refuse'. It can be so interpreted and, because 'coach' is already bound to 'person1', it is the 'coach' who is interpreted as being ignored.

A metaphorical version of the preceding text might read:

THE COACH DISPUTED THE UMPIRE'S CALL, BUT THE UMPIRE
SAID THAT THE COURT WAS ADJOURNED.

Before analyzing it, we might review traditional views of metaphor.

Theories of metaphor can be sorted into one of two classes: theories of metaphorical structure and theories of metaphorical processing. The first class of theories raises the question, what makes a particular statement metaphorical? The second, what cognitive operations must a speaker perform in understanding a metaphor? The two major theories propounded in the literature, the traditional "comparison" view⁸ and Black's "interactive" theory,⁹ though generally held to be competing accounts of metaphor, reflect a structural and processing approach, respectively.

Although the term "comparison" may signify a specific process or effect of interpreting a metaphor, the comparison view was originally conceived to describe the structure of metaphorical statements, not the psychological processes involved in their comprehension. The origins of the comparison view derive not from Aristotle's *Rhetoric*, where he analyzes the rhetorical impact of artistically active metaphors,¹⁰ but from the *Poetics*, where he identifies metaphor structurally as a specific type of noun, and then adduces four grammatical forms that a metaphorical statement may assume: genus-species, species-genus, species-species, and analogy.¹¹ Rhetoricians subsequent to Aristotle referred to the genus-species, species-genus comparisons as synecdoches.¹² This left the species-species (e.g. "man is a wolf") and analogical (e.g. "old age is to life as evening is to day") comparisons as the two accepted structural forms of metaphor.

Besides its historical basis, there is a substantive reason for not associating the comparison view with a theory of metaphorical processing--the comparison view, in its standard interpretation, represents a substantially flawed processing theory. Consider the claims implied by the traditional comparison view regarding the processing of the metaphor "man is a wolf." When interpreted as a processing theory, the comparison view implies that an understander makes a comparison between "man" and "wolf" and that the outcome of this comparison process determines the metaphorical meaning. Taken by itself, this implication is reasonable (however vague). Nonetheless, this is the only implication of metaphorical processing the traditional comparison view offers. There are many other processing factors for which a comparison view does not account. For example, the comparison view has had nothing to say about whether the metaphor under analysis is frozen or active, and it is indifferent to the various personal and situational exigencies that might prompt its utterance.

Notice that the comparison view leaves unspecified the very factors that do not require specification within a theory of metaphorical structure. For a structural theory of metaphor, it matters little whether one studies active or frozen metaphors or the context of metaphorical utterance. The structure of a metaphor does not change even as the metaphorical novelty and context do, with one and the same structure possibly eliciting different processing strategies under varying conditions. Given this observation, it is hardly surprising that Black and his associates who advocate an interactive view of metaphor have seen fit to criticize the comparison view for ignoring the very data that would be crucial to a theory of metaphorical processing. They have criticized comparison theorists for their preponderant focus on frozen metaphors. They have criticized comparison theorists for focusing only on examples (e.g. "he is a lion in battle") that express an explicit comparison in the surface structure, and ignoring examples in which no explicit comparison is

evident (e.g. the personified phrase "the spiteful sun" where the explicit terms 'spiteful' and 'sun' are surely not being used as the basis of a metaphorical comparison, but rather the terms 'sun' and 'human being').¹³ Moreover, they have criticized comparison theorists for failing to consider sentences that exhibit no internal metaphorical structure but which are made metaphorical by context. For example, the sentence "that net catches a lot of fish" is most likely literal when spoken between two fishermen wading in a stream, but metaphorical when spoken by a professor to comment on a student's vague definition.¹⁴

The positive role played by the interactive account has been to point out data that would be "anomalous" within the restrictive processing implication of the traditional comparison view. However, the interactive account posits no structure over which the "interaction" of the terms in the metaphor takes place. Because a process can be formally understood as well-defined operations on a structure, this omission marks a serious flaw in the interactive view. Indeed, the interactive view should be understood as a reaction against the limited processing implications of the comparison view as much as a constructive theory in its own right. In contrast to the traditional comparison view which isolates structure from process, and the interactive view which isolates process from structure, an adequate theory of metaphor must chart precisely the interaction between the two in the form of a structural-processing theory.

In terms of frame-driven text grammars, metaphor phenomena are associated with insertion of items from the quantification domain of one frame into the quantification domain of another, and with the recognition of isomorphisms in propositional structure between frames. Our metaphorical text example: THE COACH DISPUTED THE UMPIRE'S CALL, BUT THE UMPIRE SAID THAT THE COURT WAS ADJOURNED might yield the semantic triples:

1: coach-dispute-call	3: umpire-say-4
2: call-of-umpire	4: court-adjourn

To perform an analysis we must first add three frames: JUDGE, JUDGE-ADJOURN-COURT and TRIAL:

JUDGE FRAME

J1: judge-be-official
 J2: official-be-public
 J3: judge-be-authority
 J4: judge-administer-justice
 J5: judge-decide-question
 J6: question-brought
 J7: brought-before-court
 J8: judge-supervise-trial
 J9: judge-assure-conduct
 J10: conduct-be-proper
 J11: conduct-of-trial

JUDGE-ADJOURN-COURT FRAME

JAC1: judge-say-JAC2
 JAC2: court-adjourn

TRIAL FRAME

T1: judge-convene-court	T19: defender-make-motion
T2: counsel-select-jury	T20: motion-be-22
T3: judge-read-charge	T21: judge-dismiss-charge
T4: defendant-enter-plea	T22: if T23-then-T35
T5: prosecutor-make-	T23: judge-grant-motion
openingstatement	T24: if T25-then-T26
T6: prosecutor-offer-evidence	T25: judge-deny-motion
T7: defender-cross-examine-witness	T26: defender-offer-evidence
T8: witness-for-prosecution	T27: prosecution-give-evidence
T9: if T10-then-T12, T13 & T14	T28: evidence-in-rebuttal
T10: defender-believe-T11	T29: counsel-make-
T11: evidence-be-improper	closingstatement
T12: defender-make-objection	T30: judge-submit-case
T13: judge-decide-admissibility	T31: submit-to-jury
T14: admissibility-of-evidence	T32: jury-deliberate-case
T15: if T16 & T17-then-T18	T33: jury-deliver-verdict
T16: prosecutor-offer-evidence	T34: judge-enter-judgement
T17: evidence-be-all	T35: judge-adjourn-court
T18: prosecution-rest-case	T36: if (T23 or T34) & T35-
	then T37
	T37: trial-be-over

The processing of triples 1, 2 and 3 proceeds as for their counterparts in the literal example. Triple 4, however, yields a figurative interpretation: neither 'court' nor 'adjourn' is present in the frames on the active frame stack (BASEBALL-GAME and DISPUTE). A search is made for non-active frames containing the best match with triple 4, 'court-adjourn'. In this data base, the JUDGE-ADJOURN-COURT frame is retrieved, as well as the TRIAL frame, which contains an embedded triple of the same name (T35), and the JUDGE frame, which explicates the function of 'judge' in the other frames. There are numerous parallels, and both 'umpire' and 'judge' are determined to share membership in at least one superset. Other mappings can be inferred from other frame parallels, including an erroneous mapping (in this case) between 'trial' and 'game' rather than between 'trial' and the dispute taking place in the context of the game. Inclusion of more detail in the frames might help to resolve the problem. However, even with the sketchy data base provided in this example, the linkage of 'trial' to 'game' might be rejected if and when additional text indicates that the umpire's statement, "COURT IS ADJOURNED", does not mean the end of the ball game.

The potential for ambiguity would increase tremendously if the data base contained a set of frames for the game of tennis. Some tennis matches have both judges and umpires. However, the fact that the BASEBALL-GAME frame is active, and not a tennis frame, is of importance. Also, the triple, 'court-adjourn', is presumably not applicable to any tennis frame. Accordingly, the set of frames concerned with the legal domain might be retrieved for figurative explication rather than frames for tennis.

Of course the judge in a tennis match might make a figurative statement in a dispute that might parallel the baseball case. The computational task would be to determine that the judge in the tennis frames is not the same kind of judge as in the legal frames, and that a figurative linkage between the two is implied.

The computation of figurative association can involve direct chains of linkage through intermediate frames or through indirect associational aspects of frames. Perrine's (1971) classification of four types of metaphorical statements provides some illustrations. He observes that while metaphors often contain both a literal and a figurative term in their explicit structure (e.g. "John is a rock"), some metaphors contain only an explicit literal term and an implied figurative term. For example, in the statement "their love flickered," the term "love" is not explicitly compared with "flicker" but, rather, implicitly compared with a flame or candle. Nonetheless, the word "flicker" cognitively triggers these implicit figurative terms (e.g. flame, candle, etc.) and thus brings the implied comparative asymmetry¹⁵ ("love is a flame") into focus. A third class of metaphors, according to Perrine, contains only an explicit figurative term and an implied literal term. Such metaphors usually comprise whole sentences or discourses rather than parts of sentences. For example, the sentence "that net catches a lot of fish" can be literal, but it may also function to trigger a figurative connection between it and some literal term not explicitly mentioned in the sentence, such as a definition. Perrine also isolates a fourth form of metaphor in which both the literal and figurative terms are implicit, and which are rare, occurring primarily in literary and poetic contexts. Perrine's classification can be re-stated in a frame model on the basis of direct and indirect linkage between frames and on the basis of direct or associational linkage of terms within frames. Frozen metaphors are easier to process in that they can be handled with reference only to a single frame. However, frozen metaphors can become active. For example, the prototypically frozen phrase, "the foot of the mountain," can become active in a context such as "the explorers climbed to the foot of the mountain before attempting its knee."¹⁶

The analysis of metaphor in a frame model is rather straightforward if one is able to write the frames with advance knowledge of the kinds of metaphors to be processed. A general model must overcome two major problems:

1. The writing and encoding of enough frames to encompass the physical and social universe of a speech community. Who will write the frames? What will be the methodology? ... the level of abstraction? What guarantees are there that the frame-writing process will approach some limit in its attempt to cover the world knowledge of a speech community?

2. Retrieval. If one has succeeded in encoding an encyclopaedic inventory of frames, how does one retrieve the relevant frames for

resolution of a metaphor? As the number of frames in the data base increases, the ability to find unique metaphoric referents must decrease. The process of analysis may require detailed logical study of the internal structures of frames to determine the number and adequacy of the isomorphisms. Moreover, there can be no guarantee that frames relevant to the resolution of a metaphor will be identifiable even if they are in the data base. The isomorphisms that might be set up between two frames might not be computable because of variation in the styles of encoding of the propositional structures. Even attempts at normalization of style might fail. A canonical form to permit matching of frames A and B might not be the ideal canonical form for recognition of isomorphisms between frames B and C.

The problems just formulated are essentially ones of ambiguity, and are applicable to general aspects of frame-driven text processing systems. Where existing systems work, they do so because of circularity in the construction of the data base and task domain. (It is not part of the methodology of artificial intelligence research to design experiments that preclude circularity.¹⁷)

How do humans do it, and how may machines replicate the feat? Models of the types proposed by Schank and Abelson (1977) and Jackendoff (1976) are inadequate because they would reduce human experience to configurations with a fixed number of semantic units so small as to guarantee unresolvable ambiguity for large data bases of varied subject matter. An answer is to be found. It has two components, both of which stem from Lévi-Strauss (1962), and one of which receives support from current split-brain research:

1. The conversion of frames as propositional structures into frames as appositional structures.
2. The exploitation of Lévi-Strauss's observation that cultural forms are metaphorically related (at least in primitive societies).

Recent split-brain research has engendered several controversial theories among anthropologists regarding language and culture.¹⁸ They include the view that the distribution of task analysis between propositional and appositional cognitive brain functions is culturally determined (Paredes & Hepburn, 1976) and the view that the Sapir-Whorf hypothesis can be reformulated in terms of language structures that provide propositional and appositional representations of the world in varying degrees (TenHouten & Kaplan, 1973: 89-108).

Conversion of propositional frames to appositional format results in structures that are the verbal equivalent of pictorial icons. The formal devices mentioned in the frame examples earlier in this paper (i.e. the treatment of objects and relations as classes, the treatment of classes as objects or relations, and the treatment of frames as classes and objects or relations simultaneously, plus the features of recursion and self-embedding)

facilitate the conversion of propositional frame structures to appositional representations in the form of matrices of binary oppositions of semantic features. The process is facilitated through exploitation of the fact that class memberships may be mechanically converted to distinctive features, and the fact that the creation of supersets through merger and generalization of frames automatically creates the possibility of binary oppositions. (i.e. the subsets of a superset are candidates for status as features in opposition.)

Analysis of text and retrieval of frames using appositional representations in the form of matrices of distinctive features can yield a much more efficient frame retrieval system than methods requiring analysis of logical propositions within frames. Such a notational model is particularly compatible with Lévi-Strauss's view that most of human thinking takes place through the medium of a calculus of binary oppositions. It lends itself to inter-frame inferences through analogical reasoning techniques, and provides a computationally plausible answer to the question "how do humans do it?", especially if appositional and propositional modes of analysis are exploited in the same system.

A reformulation of some of the ideas of Lévi-Strauss is appropriate at this point, and the following discussion supplies mechanisms for some concepts that he has not expanded:¹⁹

1. The most typical form of human thinking from an historical and cross-cultural point of view is appositional and in the form of a calculus of binary oppositions.
2. At least for primitive societies, socio-cultural forms are metaphorically and transformationally related. It is the view of Lévi-Strauss that these transformational-metaphorical relations exist as a device to simplify cognition of the world. Exploitation of such relationships can also simplify computer manipulation of data about the world. If early experiences contribute to the structuring of later experiences, it is the culturally defined interpretation of the early experiences that is the dominating factor. Children learn institutions in the context of a society formed of metaphorically related structures through a process of frame inference and generalization. The first frames learned might represent single or very few instances of a very limited number of events. Those events are compared with successive events and reformulated as more general frames, with classes or features that generalize the finite training inputs, and which define binary oppositions to be used in calculating context-sensitive applications of the frames. The child's attempt to impose metaphor upon the world is inherent in the learning mechanisms that generalize finite experiences, and it is facilitated by the fact that the culture he inherits is already structured in metaphorical patterns because of the cyclic repetition of this process across generations. Modern societies do not yield the homogeneity demonstrated in La Pensée sauvage (1962), but metaphori-

cally related sub-groups of institutions may be found, even if their global integration is missing.

The process of frame generalization can be exceedingly difficult in large-scale data base systems if the frames are compared in propositional form. If they are stated in appositional form, in a notation of arrays of distinctive features, then any matching of binary feature patterns implies a metaphorical relationship between the frames, and any matching of binary feature patterns through application of a regular system of transformations also implies a metaphorical relation between the frames. The existence of such abstract structural patterning is sufficient to compute mappings between the quantification variables in one frame and the quantification variables in the other. The mappings can be made without direct reference to the internal propositional structure of the frames in question.²⁰

It is hardly surprising that the major work of Lévi-Strauss has been concerned with the logic of myth (1964-71), the highest form of metaphor to be found in a culture. There is hierarchy in the metaphorical and transformational relations of the institutions of a society, and the higher-level units of relationship may be encoded in symbolic form. The mythological system symbolically encodes the binary feature patterns that relate whole systems of institutions for a particular society. From this point of view, it is not the content of a myth or a system of myths that is of computational importance, but rather the binary opposition patterns they encode, and the sets of transformations that exist between them. It is these patterns and their relating transformational system that encode the key patterns of the socio-cultural forms in a society, and which provide the ultimate basis for metaphorical relationships.

In conclusion, we note that while we have assumed an implicit metaphorical relationship between computers and the human brain, it is in a theory about the human mind that we find a solution to problems of computation.

Notes

¹ We are grateful to Richard K. Greicar, Susan R. Kimura, Margaret R. de Marinis and Stephen J. Scalpone for their assistance with computer programs related to this research.

² For a review of the literature in computer comprehension systems, see Y. Wilks, "Natural Language Understanding Systems Within the A.I. Paradigm: A Survey and Some Comparisons," in Zampolli (1977:341-398).

³ Recently published works of this movement include van Dijk (1977a, 1977b), van Dijk & Petöfi (1975, 1977), Dressler (1977) and Petöfi & Rieser (1973).

- 4 Other artificial intelligence researchers who have considered the subject include Bobrow & Norman (1975) and Winograd (1977). The social psychologist Erving Goffman's concept of frame analysis (1974) is related to the A.I. concept but differs in that the concept of frame is more closely identified with frame as context rather than with frames as abstract scenarios. Labov and Fanshel (1977) have applied Goffman's model in a contribution to sociolinguistics, psycholinguistics and psychiatry.
- 5 "Automated Novel Writing: A Status Report" (Klein et al. 1973) describes a program that generated 2100-word murder mystery stories in less than 18 seconds, on a UNIVAC 1108/1110 computer, from a first order-predicate calculus text grammar model written in MESSY (Meta-symbolic Simulation System). The paper also appears in Burghardt & Hölker (1979). "Modelling Propp and Lévi-Strauss in a Meta-symbolic Simulation System" (Klein et al. 1974) describes an automated version of Propp's folktale model, and it contains some 50 fairytales generated by the program. It also appears in Jason & Segal (1977). A revised French version of the paper, with a revised Propp model (and expanded Lévi-Strauss model), and a different set of 50 fairytales, is to be found in Klein et al. (1976).
- 6 The Russian fairytales generated by the computer program follow Propp's model in detail, yet the stories are bad Russian fairytales because of violations of high-level, culturally determined symbolic constraints. In this sense, the results confirm the criticism Lévi-Strauss has made of Propp's work (1960), a paper which is available also in his Anthropologie structurale deux (1973) (English translation, 1976).
- 7 A simulation language with a semantic component. Text grammars may be formulated within it as simulation rules, and used generatively in a simulation. Plots are actually executed as computer simulations (with controlled degrees of randomness). The events are recorded in a semantic network, and as the simulation progresses, the altered portions of the semantic network are sent to a linguistic production component that maps semantic network sections onto syntactic rules in a phrase-structure/transformational model. Appelbaum has written a user-manual for the system (1976) with a Foreword by S. Klein describing its history.
- 8 This view can be traced back to Aristotle. However, it was not given airing as a systemic thesis until Black (1962:25-47).
- 9 Ibid.
- 10 The Rhetoric, 1045a.
- 11 The Poetics, 1457b. See Black, p. 36, for discussion of the relevance of this Poetics section to the traditional comparison view.

12 See J. David Sapir, "The Anatomy of Metaphors," in Sapir and Crocker (1977).

13 These criticisms have been leveled by, among others, I. Loewenberg (1973:30-45) and R. Haynes (1975:272-277).

14 Ibid.

15 Ortony (1978) has discussed (though he has not attempted to explain) the asymmetry of metaphorical statements.

16 The original freshness of a frozen metaphor can always be "figured out" with some elaboration. Perelman remarks (Perelman & Olbrechts-Tyteca, 1969:405) that "the most usual way of awakening a metaphor is to develop a fresh analogy, with the metaphor as a starting point."

17 See note 2.

18 S. Klein, "Whorf Transforms and a Computer Model for Propositional/Appositional Reasoning," presented at the Applied Mathematics Colloquium, University of Bielefeld, Federal Republic of Germany, December 1977, and at the Computer Science Colloquium, University of Paris-Orsay, December 1977. S. Klein, "Levi-Strauss Computes," presented at a Joint Colloquium of the Anthropology Dept. & the Computer Science Dept., University of California, Irvine, March 1978.

19 Brenda E.F. Beck's excellent review article, "The Metaphor as a Mediator Between Semantic and Analogic Modes of Thought" (1978), also exemplifies the fact that theoretical discussions in anthropological literature usually leave the mechanisms behind concepts unexplored.

20 See note 18.

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THREE VIEWPOINTS ON THE ORGANIZATION OF LINGUISTIC UTTERANCES

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INTRODUCTION

Linguistic utterances are not isolated units and, despite the endeavors of some recent schools of linguistic thought to handle them as independent entities, the only realistic way of doing justice to what actually occurs in the act of communication by language is to consider them parts of organized sets. These sets we can call paragraphs, either oral or written. Yet, although much of the distinctive character of a linguistic utterance is comprehensible only if we insert it within the paragraph of which it is a part, it remains necessary to have at one's disposal a theoretical and practical framework by means of which one can analyze the utterance and state its characteristics. My purpose in the present article is to provide such a framework, keeping in mind that much of contemporary research in syntax and semantics is hampered by the fact that a great deal of confusion is the permanent danger which threatens anyone who wants to understand thoroughly what a linguistic utterance represents. I will present in three points the way I view this issue: first, in § 1, I will propose the three viewpoints according to which I think a linguistic utterance is organized; then, in § 2, I will deal with the content of each of these three approaches, and with the way they are related; finally, in § 3, I will show how this applies to the description of particular languages.

1. The three viewpoints

To begin with, we must define what a linguistic utterance is. I propose two main criteria. The first criterion, a semantic one, is the acceptance by the native speaker-hearer of the set in question as complete, i.e. not requiring addition(s) in order to constitute a coherent meaning and convey a comprehensible message.

Since the present study focuses on the utterance itself, I will deal with cases of utterances whose elucidation depends neither on the situation nor on the linguistic context; as I have insisted above, however, the latter should never be lost sight of, since several aspects of a linguistic utterance cannot be done justice to short of re-inserting it within the paragraph.

The second criterion I propose as defining the linguistic utterance is a formal one: a certain intonational contour indicates the boundaries of the utterance; and this contour, contrary to what is sometimes assumed, can have many different manifestations, depending on the particular language in question, and on the type of utterance within one and the same language. I

have extensively dealt with this in another work (see Hagège 1978 a).

The linguistic utterance being so defined, it seems to me that any careful study of its semantic and formal characteristics is likely to lead one to the conclusion that he can consider it from at least three viewpoints, as is seen in figure 1 below:

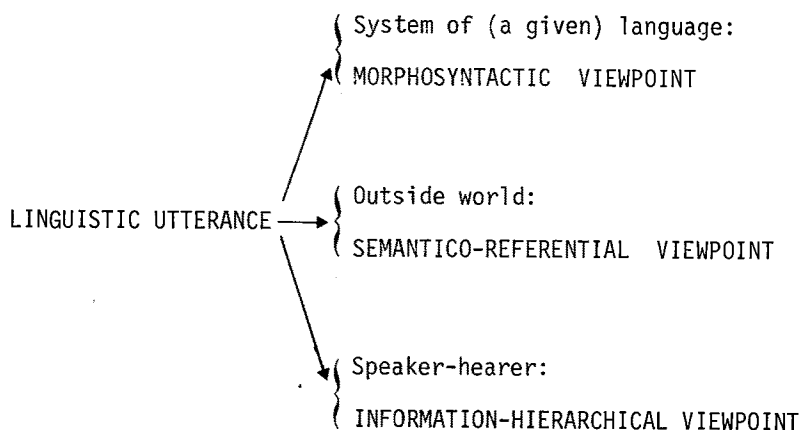


Figure 1

- a) The first viewpoint has to do with the linguistic utterance in relation to the system of a given language. It is therefore oriented towards the relationships between the terms (see below, § 3, for the definition of the notion of term), and towards the material forms which serve to mark these relationships. I call it, consequently, the morphosyntactic viewpoint.
- b) The second viewpoint concerns the relationship between the utterance and the outside world about which it says something; "outside world" here means anything outside the linguistic message itself as an object. From this viewpoint, we study forms, not as forms *per se*, but inasmuch as they express a certain event, static or dynamic, real or imagined, etc. I propose to call this the semantico-referential viewpoint.
- c) The third viewpoint concerns the relationship between the utterance and the one who utters it. The latter chooses a certain strategy or mode of presentation, which introduces a definite type of hierarchy between what the utterance says and what it says it about. But at the same time the speaker when speaking gives

(consciously or not), and the hearer when hearing receives, an information on the individual, social and psychological status of the speaker; in other words, the information is both objective (choice of a strategy) and expressive (speaker's characteristics). Keeping in mind this double meaning of "information", I propose to speak here of an information-hierarchical viewpoint.

As a first step of thinking over this problem, I have chosen to speak in terms of levels. But I have finally decided to give up levels and to speak in terms of viewpoints instead. This is for two reasons: first, there is no hierarchy, no logical or chronological order of succession between these three approaches; they simply represent the three ways in which the speaker-hearer, in concrete social situations, organizes what he says or hears, and in which the linguist should analyze linguistic utterances; second, if it were true that level is the right term and that what its choice implies has any linguistic significance, then how could we account for the fact that these "levels" overlap constantly, as is shown by the permanent confusion one observes in most contemporary views on the linguistic utterance? It is beyond doubt that these three approaches should be distinguished. But by representing them as successive levels, we would imply that they are linked by a hierarchical relationship or that a transformational mechanism is likely to allow us to derive one from the other. This is precisely what I reject, for two reasons: first, because, as stated elsewhere (see Hagège 1980 a), there is neither phenomenal reality nor even operational usefulness in such a mechanism; second, because each of these three viewpoints sheds just as much light as the other two on one fundamental problem, to wit, how language gives us the possibility of producing meaning with forms. In other words, although we must distinguish these three viewpoints if we are to understand what a linguistic utterance represents, and what it teaches us about the place of language in human activity, I have chosen to represent them on the same line, as is shown on figure 2.

2. Content of and relationships between the three viewpoints

Figure 2 below indicates what this content and these relationships are. Much of contemporary research on syntax and semantics is vitiated by the fact that the three viewpoints are often confused with, mistaken for, one another. For example, when we speak of subject, we are dealing with a certain syntactic relationship: a subject is nothing in itself, nor does the physical world contain any such things as subjects. There are only SUBJECTS OF certain predicates. The same holds, conversely, for "predicate", except in languages where minimal utterances, reduced

to a simple or complex term (see below) functioning as predicate, are possible. Now, when speaking of SUBJECT OF (a certain predicate) or PREDICATE OF (a certain subject), we have not said anything, yet, of the role played by the referent that stands for this subject or for this predicate in the outside world. As far as the referent of the subject is concerned, for example, it can be an agent (performer) or a patient (undergoer) or (especial-

ly in Bantu or in South-East Asian languages [see Hagège 1978 b, p. 25]) a point of space or moment of time. In

(1) *Peter ate the meat*

and

(2) *the meat was eaten by Peter* ,

Peter is agent and *the meat* is patient, in both sentences. However, in (1) and in (2) identically, *Peter* and *the meat* have one unchanging function: they function as SUBJECT OF a predicate, *ate* in (1) and *was eaten* in (2). This is a cogent reason for distinguishing between the morphosyntactic and the semantico-referential viewpoints. Now, choosing to speak of Peter or of the meat to begin with, implies a choice from still another viewpoint, the third one, which I call information-hierarchical: it is not irrelevant whether the speaker-hearer chooses to say (1) or (2) above, because in this kind of structure the first Noun Phrase is a topic, i.e. that about which the utterance says something; choosing Peter or choosing the meat as topic presupposes a different strategy as far as the speaker-hearer is concerned. This is one of the many reasons why, in the history of a formerly fashionable current of linguistic thought, the famous notion of the "passive transformation" has itself undergone many a transformation, when people became aware that important semantic problems were involved in this seemingly innocent operation.

If we now examine the kind of correspondence which could exist between our three viewpoints, we observe in a sample of many different languages the following: what, from a morphosyntactic viewpoint, is a subject coincides very often with what, from a semantico-referential viewpoint, is a participant (agent or patient), and with that which, from an information-hierarchical viewpoint, is the topic. However, very often does not mean always. This correspondence is very frequent but we find cases where it does not obtain. For example, instead of

(3) *many of my friends* *came*

I can say

(4) *and there came a whole crowd of my friends*

This is why there is a caveat in figure 2, which says that the arrows mean "corresponding mostly to"

3. Application to the description of particular languages

In order to study the way all this applies to the description of particular languages, it is convenient to distinguish minimal utterances from enlarged ones. One might object that it is better to start from the saturated utterance. Quite to the contrary I

think that, precisely because the whole set of possible relationships between the terms is best illustrated in the saturated utterance, it is more enlightening to start from a threshold below which it is not possible in a given language to build an acceptable and complete utterance. The smallest utterance meeting these requirements is the minimal utterance. Since it is centered around the predicate (with which it may even coincide in certain languages, as I mentioned above), it is the only one that gives us the possibility of studying fundamental syntactic relationships, i.e. predicative relationships. Once these have been characterized, then types of relationships that link the terms in more and more expanded utterances, and finally in the saturated one, can appear more clearly.

a) The minimal utterance

As is seen in figure 2, the minimal utterance from the morpho-syntactic viewpoint contains two terms, a predicate and a subject, the order of succession of which depends, of course, on individual languages (the order adopted in figure 2 is purely conventional and has no universal value). "Term", here, does not refer to a morphological unit, but to a syntactically homogeneous word or phrase. It is, therefore, a functional, not a categorial, notion. This distinction between functions and categories is a very important one, overlooked by certain modern theories, including transformational grammar (see Hagège 1980 a, chap. III, 1, A), b)). When we speak of PREDICATE OF and SUBJECT OF, we speak in terms of functions, not of categories. A predicate can, in terms of categories, correspond to either a verb (or adjective, but see fn. 2 in figure 2) or, less frequently in the known languages, to a noun, in what are called nominal sentences. A predicate can also correspond to a Verb Phrase, i.e. to more than one isolated verb, just as the subject can correspond to a Noun Phrase and not only to a single isolated noun. When the predicate is verbal, which is the case in most types of utterances (including in languages that have nominal sentences), a difficult problem is to decide what is subject and what is predicate. As seen in figure 2, I propose to distinguish two cases:

i) The verbal predicate is not inflected for person: languages of this type are spread all over the world, the monosyllabic languages of South-East Asia being among the best known examples. In this type of language, the subject is represented by any of the following categories or phrases: Noun, Pronoun, Noun Phrase, Relator Phrase, etc. Examples:

Chinese:

(5) *xuéxí* *hǎo*

study's good

"it is good to study"

(6) *tā* *hǎo*

he good

"he is a nice fellow" or "he is in good health"

(7) *zhèi běn* *shū* *hǎo*

this classifier book good

"this book is good"

- (8) *shān shang hǎo*
 mountain on good "the mountain is beautiful"

Japanese:

- (9) *sakana ga oisii*
 fish subject marker good "the fish is tasty"

ii) The verbal predicate is inflected for person: this case is more complex, because, contrary to the previous one, it does not present clear-cut terms, predicate and, by elimination, non-predicate. It is therefore very important to examine what person is associated with the verb. An essential distinction here is between 1st and 2d person on the one hand, and 3rd person on the other: 1st and 2d person represent the very participants to the act of communication itself, since an utterance is said by someone and to someone else. In general, the speaker cannot refer to himself or to the hearer by using a Noun Phrase as an expansion of the personal pronoun present in the Verb Phrase (the only [apparent] exception I know of is in Walbiri [Australia] as studied in Hale 1973, p. 317). Even when this seems to be the case, what we really have is either an address/invocation, as in

- (10) *John, bring me this book!*

or an apposition to the personal index which is present in the Verb Phrase, as in this Spanish example:

- (11) *las mujeres, somos así* "such is our nature, we women"
 to which there exists an equivalent

- (12) *nosotras las mujeres, somos así* with an independent pronoun.

Consequently, the only possibility left is to consider that the 1st or 2d person pronoun or index represents the subject, since it refers either to the speaker or to the hearer, and one at least of these two (in monologues) or, more often, both of them are part and parcel of the act of communication. The personal pronoun can be discontinuous, pronoun proper and amalgamated index constituting a single syntactic unit, i.e. the subject, as in

- (13) French *nous* *travaille-* *ons* "we are working"

- (14) Russian *my* *rabota-* *em* same meaning

or it can be morphologically simple, as in

- (15) *θo - ʒt*
 go we "we are leaving"

an utterance in Comox, a Salishan language of British Columbia (see Hagège 1980 b).

Now, if the inflected verbal predicate is in the third person, then the subject is again the pronoun, but only if the latter can be expanded by something else in an enlarged utterance. This is to eliminate cases in which the verb is inflected but it

is not possible to specify any segment to which this inflection refers. Traditional grammar, in these cases, speaks of impersonal sentences:

(16) French *il pleut* "it is raining"

(17) English *it rains* same meaning

(18) Comox *čet - Ø* same meaning

(19) Russian *pašnet* "it smells bad"

In all these examples, the "3rd person" cannot be expanded by any Noun or Noun Phrase. Consequently, I propose to consider that the utterance contains only a predicate, without subject, as opposed to cases where the 3rd person is easy to specify in an enlarged utterance:

(20) French *Jean* *viend -* *ra* "John will come"

(21) English *Paul* *ha -* *s* *left*

(22) Russian *Pëtr* *uxa -* *l* "Peter has left"

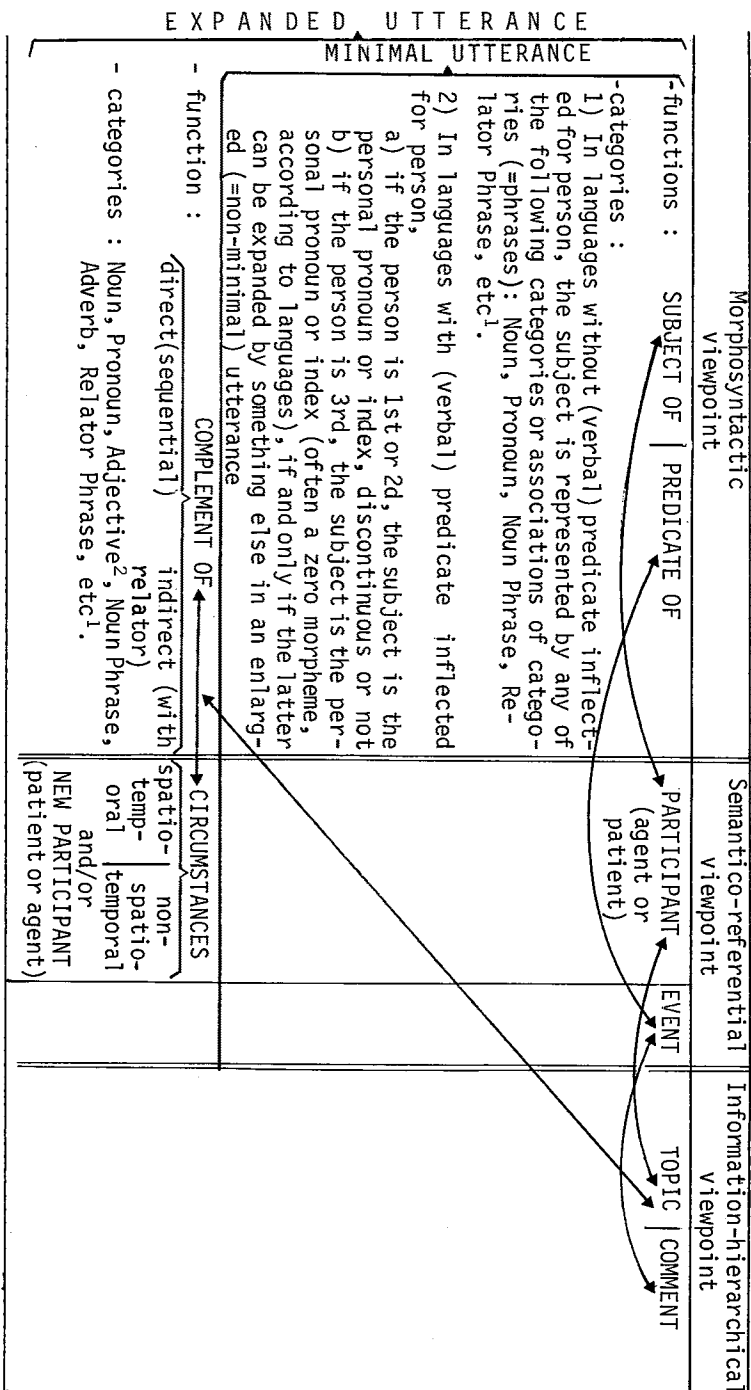
(23) Comox *θo -* *Ø čəy* "the child is leaving"

b) The expanded utterance

If we examine, now, an utterance longer than the minimal one, we find, from the morphosyntactic viewpoint, one or several COMPLEMENTS OF: they can be either indirect, i.e. with relator (preposition, postposition, circumposition), or direct. In the latter case, I call them sequential, since they are characterized by their position in regard to the predicate: they can, according to the language, either precede or follow the predicate. They are also characterized by their position in regard to one another. For example, in several Bantu as well as Austronesian languages which have few relators, the relationships between the predicate and the complements are indicated not by pre-, post- or circumpositions, but by both orienting affixes added to the verb and a collocation of sequential complements which is not random: the one which stands for the beneficiary must, in some languages, come before the one standing for the goal, etc., so that their respective positions are among the features that characterize them and serve for their identification.

This leads us to the second viewpoint, the semantico-referential one. The notions of beneficiary and goal, which I have just mentioned, belong to what I propose to call non-spatio-temporal circumstances, as opposed to spatio-temporal ones, i.e. space and time specifications. In other words, from the morpho-

Figure 2 (the arrows mean "corresponding mostly to")



¹ The grammar categories mentioned here are the ones shared by most known languages, past and present. By "etc.", I mean any other category, rarer in the known languages and likely to function as subject.

² In languages which possess such a category, of course, since it is not universal (see Hagège 1974).

syntactic viewpoint, we have merely syntactic relationships (-syntactic) and the forms that mark them (morpho-). But corresponding to the complements as identified by their positions and/or by the presence of a relator, we have various semantico-referential specifications. It seems to me that such a distinction between two viewpoints gives us a clue to discover the respective participation of syntax and semantics in the fundamental problem languages have to solve: how to convey and interpret a sense by means of forms.

Now, since the minimal utterance already contained one participant, i.e. the one represented, in morphosyntactic terms, by the subject, the expanded utterance can, in addition to or instead of a complement representing a circumstance, contain a complement representing the patient (if the minimal utterance contained an agent) or the agent (when the minimal utterance contained a patient). Finally, as is seen in figure 2, the information-hierarchical viewpoint is the only one which presents an exclusively binary structure. In other words, the topic can correspond to either the subject or one of the complements, as is indicated by the arrows. (It can also correspond to the predicate, but this, as I said, is less frequent, hence the absence of arrows pointing to this correspondence).

CONCLUSION

I think it is essential to distinguish the three viewpoints dealt with in this paper, even though, or precisely because, they interfere constantly in the reality of discourse. The first viewpoint pertains to morphosyntax, but also, through it, to semantics, inasmuch as the functions (predicate of, subject of, complement of) and the categories (verb, noun, adverb, etc.) contribute to the meaning (see Hagège 1978 a). The second and the third viewpoints define the other two domains of meaning, i.e. the part that belongs to the outside world¹ and the part that belongs to the speaker-hearer. Therefore, what is proposed here is a view of language as a mechanism of production-interpretation of meanings through forms*.

¹ By calling the viewpoint which has to do with this domain of meaning, semantico-referential, I do not wish to imply that the referent should by any means exhaust the field. It is obvious, and largely agreed upon by linguists of different persuasions, that, important as it may be in the definition of the notion of meaning, the referent only constitutes a part of the phenomenon of meaning-production.

* I am indebted to Adam Makkai for his patient correction of the English style, and to Françoise Peeters for typing the figures.

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IN DEFENSE OF THE PREDICATIVE FUNCTION OF METAPHOR*

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In an earlier paper (Boisset, 1978), I investigated sentences which had in common several characteristics: first, they could not be generated within the framework of Generative-Transformational Grammar; second, their meaning was not the sum of the meanings of each lexical items of which they are constituted. I showed that these characteristics were not limited to what is usually referred to as idioms in the literature, but also belonged to some types of speech acts.

Whereas I had then concerned myself mostly with lexical metaphors, I am now convinced that these two characteristics, i.e. the non-generatability of metaphors and the non-componentiality of their meaning, are not restricted to lexicalized metaphors, but hold true for newly created ones and are widespread phenomena in language.

In this paper, I will attempt to justify the need for a different variety of interaction analysis of metaphor. I will review successively different stances taken by rhetoricians as well as grammarians. I will show that these analyses cannot account for the facts under investigation because of a basic principle to which they adhere, namely, that one can obtain the meaning of a sentence by considering only the meanings of its words. I will further show that a substitution theory, under which a metaphorical term is substituted for a literal one, is inadequate because it fails to account for a number of metaphorical statements which do not have a so-called literal counterpart, and that the notion of semantic selection restrictions on which this operation rests is rather dubious.

Although there have been some important changes in the way we look at language over the past thirty years or so, we are faced with some problems which are rooted in some concepts derived from the classical age. Furthermore, I am not attempting to establish any relationship between the various philosophical grammars and modern linguistics as far as their methodology is concerned, and I am not trying to delimit some partial isomorphism between their respective domains of study. Although such an operation is tempting in light of the similarities they display, their object is quite different. Whereas the purpose of linguistics is to investigate language as a coherent system with

its own rules, the philosophical grammars view language as the reflection of the rules governing thought processes.

The weakness of modern linguistic studies resides in their approach to semantics. No matter how much headway has been made in other areas, like phonology or syntax, we are still operating under the assumption that the meaning of a sentence can be obtained solely from the meaning of the component word, or more precisely, that there exists a regular progression from morphemes to sentences.

I. The norm

Before an alternative to current analyses of metaphor can be presented, the factors which led to a semic analysis must be investigated. The two most important treatises written on the subject in French, by Dumarsais (1730) and Fontanier (1830), although they show a number of differences, are both concerned with the word as it is used in discourse. Dumarsais was concerned chiefly with the different meanings a word can have in a language. In this respect, he takes on the attitude of the grammarian: "This treatise is an essential part of grammar since it is grammar's domain to explain the true meaning of words, and how they are used in discourse" (Dumarsais, 1818, p.22). The importance of the word as the fundamental unit of signification is thus emphasized: tropology for Dumarsais is the study of words. Fontanier, on the other hand, gave an exhaustive description and classification of the figures of discourse. "Les figures du discours" is not the work of a grammarian, but of a rhetorician. Figures of speech are defined as deviation from a simple and common expression. According to Fontanier, then, cathacresis is a trope but not a figure, because no simple expression can be substituted for this trope. Their approaches differ in the sense that Dumarsais would be viewed now as a lexicologist, whereas Fontanier was a stylistician (see Genette, 1968). But their position is basically the same: they both make a crucial distinction between the true meaning of words and their usage, or the literal meaning and the figurative one. This comes from the fact that Fontanier and Dumarsais are part of the tradition which gave the philosophical grammars, which were characterized by the hegemony of the word. There is almost no syntax, for instance, in the *Grammaire de Port Royal* (Arnault and Lancelot, 1660): for the two authors, relationships between words of a sentence do not constitute an independent system. They are analyzed only insofar as they allow us to express the relationships between things. The arrangement of words within a sentence has no other goal but to fix in language things represented by these words.

The word is, for the authors of Port Royal, the center of signification. The role of grammar is to expose different significations for different words. The word as a sign is always linked to the idea.

This had some very important consequences: 1) there is always a proper term to express a given idea. When our expressions follow our thoughts, there is no superfluous or missing word. Only when speakers wish to be more concise or to embellish their speech do they alter the natural order of their speech. Such liberties taken with language are for Arnault and Lancelot clearly grammatical irregularities even though they might have some aesthetic value. This is the role of the figures of discourse. This fallacy is very widespread in the study of language. Most traditional grammars, for instance, give rules such as "Members of class X verbs are followed by Y types of complements", without bothering to define what constitutes a class. As a consequence, these grammars have to invoke the notion of usage to accommodate recalcitrant facts. The way they do this is by introducing additions to these rules, i.e. members of class X are sometimes used in such and such environments. 2) The other tenet in the philosophical grammars, illustrated by the *Logique de Port Royal* (Arnault and Nicole, 1662), and which follows directly from their ideas of the role of the word, is the introduction of the norm. The norm is not conceived of as a set of prescriptive rules that one must obey in order to speak well. It is the condition without which there cannot be any speech at all: to speak without obeying the rules of Grammar is not to speak at all.

Within this theory of Grammar, tropes or figures of speech constitute a deviation from the norm. Since the norm is defined by the proper term, the relevant opposition is between figurative/usual (Dumarsais), or figurative/literal (Fontanier). The figure of speech is therefore viewed essentially as a substitution operation: a figurative expression is substituted for a literal one which can be recovered mentally by speakers and listeners. Fontanier went further than Dumarsais by incorporating not only words but groups of words as well in his study of figures. The word, however, remains the key to the meaning of metaphor. This substitution position held by classical rhetoricians follows from the conception of language exposed in the philosophical grammars. Because of this relationship of the term with the thought, the burden of metaphorical meaning is carried by the word alone. But since the word can occur in different environments, its relationship to the idea becomes altered. Hence the opposition figurative/literal in Fontanier and figurative/usual in Dumarsais.

The question which arises immediately is whether or not this opposition is justified. As mentioned above, this distinction is indispensable to account for the fact that words may be found in environments from which they should be excluded because of the meaning they are supposed to hold. This has led some linguists to claim that selection restrictions within metaphorical statements are violated. Here, a few observations are in order. First, it has been noted (Beardsley, 1978; Reddy, 1969) that most metaphors do not violate any restriction selections, at least within

the metaphorical segment. Second, some features like [$\pm$ human] play only a secondary role in the analysis of the structures of the verbs entering into complement constructions (Gross, 1969). Furthermore, the formal properties described at length (e.g. by Gross) in French are far less systematic than one would expect. As a matter of fact, to qualify somewhat the statement made by Reddy (1969) that all sentences are potential metaphors given the right context, it seems that as long as the formal selection restrictions are obeyed, i.e. as long as the sentence is grammatical, the sentence will be understood. Consider for example these statements drawn from newspapers and advertising, (Borillo et al. 1974):

- (1) Tricotez-lui votre tendresse.
(Knit your tenderness for him.)
- (2) Dites-le avec fleurs.
(Say it with flowers.)
- (3) Vous l'aimez comme au premier jour, mitonnez-le lui!
(You love him as you did the first day, simmer it for him.)

By just considering the so-called literal meaning, all the sentences above should be impossible. In (1) tendresse is an abstract term, and tricoter requires a direct object (usually yarn). In (3), mitonner (to simmer) should also take a concrete direct object (stew), but in this case, its direct object, le, refers to the whole preceding sentence, vous l'aimez comme au premier jour. All the sentences above, however, are readily understood by listeners as metaphors, because none of the distributional properties of the verbs tricoter, dire and mitonner are violated.

As a consequence of the dichotomy between literal and figurative meaning, the word will be represented by structural semanticists as an aggregate of semes. The inclusion or exclusion of some semes is then made according to the norm defined as the proper usage. The motivation behind such semes is itself very questionable (see Searle 1974, p.27). They seem to represent the intuition of speakers, and are empirically testable to a certain extent. Because of the componential nature of structural semantics, the semes will have to handle all the meaning of the sentence, although this conception of the sign seems to have been reached a posteriori. Let us see, since metaphors are usually analyzed as a deviation from the norm, if the dichotomy literal/figurative is justified.

II. The distinction between Semiotics and Semantics

An observation which comes immediately to mind is that not only are metaphorical statements not always of the form "the X is

as/like Y", but very often they are not reducible by paraphrase to such a proposition. It comes as no surprise that examples provided throughout the literature are often of the type "this man is a lion"---in other words, metaphorical statements involving some type of comparison. One is then drawn almost automatically to a semic analysis. One keeps the semes on the right of the copula compatible with those on the left, and the equivalence is preserved. This obviously is too schematic an account of the semic analysis, but I wish to point out an example of what is, I believe, a bona fide metaphorical statement which cannot ultimately be paraphrased by a proposition of the type "X is Y". Metaphorical statements involve more than a comparison and cannot be dealt with in terms of semes. Consider for illustration the lexicalized metaphor:

(4) Paul is pushing up daisies.

When one tries to recover the meaning of (4) by a substitution operation, its meaning changes from activity to state. The most natural paraphrase of (4) is something like Paul is dead. An expression containing a non-stative verb is understood as having a stative meaning. This argues strongly against the bracketing of semes or the alteration of their organisation.

Because of the hierarchy introduced in language along with what Benveniste (1966) characterized as a linear progression from one structural unit to another, a semic analysis fails to account for sentential metaphors, because the sign constitutes a distinctive unit which is delimited by opposition with other units. However, in the case of sentential metaphor, the sign cannot be opposed to another; its meaning is no longer delimited by other signs. Sentential metaphors can be analyzed as specific cases of metaphorical processes: the same principles seem to hold for metaphors constituted by one word and sentence metaphors.

Benveniste (1966) pointed out that formal units could be identified with higher units from phoneme to word to sentence. The sentence, however, belongs to another domain: it cannot be integrated to another level. Phonemes, morphemes and lexemes and their distributions can be inventoried, but sentences do not have distributions and cannot be integrated in another unit. They belong to a discourse. What characterized the sentence for Benveniste is its predicative nature. Although it contains signs, it is not itself a sign. It has no integrative function but can only be juxtaposed to other sentences in discourse. What is important is that one sign can constitute a predicate, and that there can be no subject since the predicative term is enough in itself. For Benveniste, then, the sentence is not a sign, but belongs to the discourse. The relationship between phonemes, morphemes, words and the sentence, that is their distributional and combinatory properties within the sentence, can be compared to

the relationship of signs within the sentence as a segment of discourse. Just as one cannot predict from isolated lexical items the various possible combinations in which they can occur, the meaning of a sentence is more than and different from the sum of its parts. Let me illustrate further this parallel between syntax and semantics. One may make an exhaustive description of the inflectional system in a given language, but this will shed little light on the way elements within the sentence can be combined. This now may sound trivial to linguists, but most grammars (text books) attempt to deal with syntactic problems through morphology. Gross and the team at the Laboratoire d'Automatique Documentaire et Linguistique in Paris have tested about 8000 verbs in French in over 100 syntactic constructions. The results show that, although some broad classes of verbs can be established on the basis of these tests, like verbs of movement, there are no two verbs in French which share exactly the same properties. These syntactic properties are totally unpredictable: verbs of "feeling", "wish", "action", etc., traditionally grouped within classes, show some very important distributional differences. The notion of norm, based on the idea that verbs occur in very few environments (implying that they are excluded from all others), is shown to have no empirical basis.

The same situation arises in semantic descriptions: words occur sometimes in environments from which they should be excluded according to the norm proposed. However, I believe that there are far more possible semantic environments in which the word can occur than is suggested by a semic analysis, excluding clear cases of polysemy. Speakers incorporate into language their experience of the world through their constant use of a fairly limited number of elements which they have at their disposal. Objects are first identified, and then qualified. Metaphors, too, belong to discourse. They share with the sentence as defined by Benveniste the fact that they are predicates. The characteristic of metaphor is that the signs which constitute them cannot be opposed to others. Their meaning is no longer obtained through opposition or delimited by other signs. They constitute units which are segments of discourse and are not distinctive with respect to other units on the same level: there can be a potentially infinite number of metaphors. It is impossible to look for an explanation of metaphorical processes on the semiotic level: metaphor is the actualisation of predication and belongs to a higher order. Therefore, what a semic analysis of metaphor amounts to is to confine to the domain of semiotics what belongs properly to semantics. Hence the failure to accommodate sentential metaphors.

It is tempting to handle some metaphors as cases of conversational implication in a process similar to what is conveyed by certain types of request. The advantage of such an analysis would be to save the componentiality of the meaning of sentences by rel-

egating the decoding of metaphors to the pragmatic component of language. Whereas, however, the decoding of speech acts involves some kind of cooperation on the part of the listener, metaphors require no such cooperation. One can always cop out of a request like the garbage can is full by, among other things, answering nothing at all, i.e. taking the sentence literally. At worst, a principle of cooperation may be violated, but the statement above is still meaningful. In the case of metaphor, on the other hand, there is no such choice: any attempt to decode a metaphor through the meanings of its parts leads to an absurdity if one is not in a situation where the elements of a sentence could refer to something. What is involved in this case is not an identification process, but a predication. One may or may not agree with the attribution of some qualities to a given object, but one cannot ignore it, as is the case with speech acts.

III. Conclusion

We have seen that selection restrictions are not the issue in metaphorical processes. The creative use of language calls for a systematic exploitation, not of semantic features, but of the possibility of syntactic elements to be combined. The attribution of semantic features to a given word has therefore no explanatory value.

Metaphors always express some kind of judgement on the part of speakers: they always tell us something which is not present in the so-called literal counterpart through a network of connotations of the word. Claiming that a metaphor is a mere ornamentation serving only aesthetic purposes is reverting back to the notion expressed in Fontanier that there is one word corresponding to one idea.

* I am indebted to Philip Baldi for helpful comments on this paper.

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II

REFINEMENTS IN ESTABLISHED APPROACHES

COMPARATIVE RECONSTRUCTION (ESPECIALLY IN ROMANCE) — HOW FAR AND HOW VALID?

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In many accounts of the history of linguistics,¹ the impression is given that the comparative method was an achievement of the nineteenth century. This notion is only partially true. Dante, at the end of the thirteenth century, recognized the relationship among the Romance languages, and between them and Latin, even though he reversed the relationship by conceiving of Latin as having been constructed on the basis of the Romance languages by a common agreement among learned men.² Beginning with the sixteenth century, however, it was recognized that the Romance "family" of languages had developed by differentiation out of Latin.³ As West European scholars' acquaintance with the languages of the world grew, it was widely recognized in the seventeenth and eighteenth centuries that there were a number of groups or "families" of languages, such as Germanic, Slavic, and Celtic.⁴ The parallel of the relation of Romance to Latin suggested that the other language-families might likewise each have developed from a common "ancestral" source.⁵ The actual procedure of reconstructing a non-attested proto-language was first begun towards the end of the eighteenth century in the Finno-Ugric field, in the work of Sajnovics and Gyarmathi.⁶

The contribution of the nineteenth century was, rather, to systematize what had up to that time been relatively approximate observations concerning language-relationships. This was achieved primarily through the rediscovery of a basic principle which had first been stated in the sixteenth century and then forgotten: that of regular sound-change.⁷ All the other factors in language-change — such as analogical new-formation, dialect-borrowing, cultural borrowing, learned borrowing — were already known; but, as was explicitly recognized by Turgot⁸ in the mid-eighteenth century and probably by others as well, a specific principle for dealing with the development of sounds was still lacking. When this principle was recognized, at first implicitly and then explicitly, it rendered a great expansion possible in at least two major respects: (1) it was possible to recognize wider relationships than had previously been the case;⁹ and (2) structural as well as lexical relationships could be studied. In this way it became possible to obtain a clear picture, as far as available data permitted, of the grammatical characteristics of the source-language out of which a group of related languages had obviously developed. Romance linguistics was in a position to serve as a paradigmatic example in this task, be-

cause the western languages of the group were widely known, as was Latin, at least in its classical form.

Paradoxically, however, Romance lagged behind other fields in the application of the comparative method as such. The farther back in time we go, the closer the early attestations of the Romance languages resemble each other, and the closer they seem to come to Latin (shown schematically in Figure 1). It is therefore easy to conclude that Latin is the "ancestral" lan-

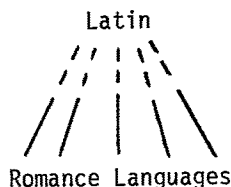


FIGURE 1
GOING BACK TO LATIN
(STAGE 1)

guage out of which the Romance tongues developed. Therefore, it has often been said, we do not need to engage in any exercise of comparative reconstruction to arrive at Proto-Romance, since we already know the answers in advance.¹⁰

As long as we think of Latin as being a single, unified *état de langue*, such a position may not seem unreasonable. What, however, if we recognize that our attestations of Latin represent only a small sample of only one variety (by and large, the prestigious literary dialect), and if we find that our Romance data do not exactly jibe with what the grammars of literary or Classical Latin tell us? Ever since the mid-fifteenth century, since the famous debate between Leonardo Bruni and Flavio Biondo,¹¹ we have known that the orators in the Forum and the writers of elegant poetry did not use the same language as the common people. To refer to the usage of these latter, various terms were available from ancient authors, e.g. *sermo cotidianus* 'every-day speech' or *sermo plebeius* 'lower-class speech'. Direct attestations of every-day or lower-class usage are relatively rare, and to be found only scatteringly in classical authors of the "golden" and "silver" ages.¹² Somewhat more extensive are the representations of colloquial speech in the comedies of Plautus and Terence¹³ in pre-classical times, and in the writings of certain authors who "didn't know any better" in the late Imperial period, as well as in other direct or indirect sources.¹⁴

To refer to this non-classical Latin, such terms as the al-

ready-mentioned *sermo cotidianus* and *sermo plebeius* have been used, and also modern terms like *Popular Latin* (*Volkslatein, latin populaire*) and *Vulgar Latin* (*Vulgärlatein, latin vulgaire*). The writings of authors manifesting non-classical traits have been very thoroughly combed for instances of popular and especially pre-Romance phenomena. Nearly a century and a quarter ago, Hugo Schuchardt (1842-1927), as a young man, began a comprehensive study of the phonology of "Vulgar Latin," of which he published only the part dealing with the vocalism.¹⁵ Unfortunately, instead of continuing his detailed study of "Vulgar Latin," Schuchardt frittered away the rest of his scholarly activity on etymological minutiae and unproductive polemics.

Some of Schuchardt's polemical efforts were directed against the best known (at least the most widely discussed) theory of the late nineteenth century, that of *Ausnahmslosigkeit der Lautgesetze*, summed up in the over-concise aphorism of August Leskien, *Die Lautgesetze kennen keine Ausnahmen* (1876). There has been a great deal of discussion, much of it uncomprehending, of the dust-up over Karl Brugmann, August Leskien, and their colleagues in the group known as *Junggrammatiker* or "Neo-Grammarians", the best summary is in Jankowsky 1972.¹⁶ Suffice it to say here that Schuchardt, like so many later Romanists who have followed his line of argument, was unable to see the wood for the trees.¹⁷ His attention to minute details of etymological history led him to a myopic view of linguistic change, an inability to see the guiding principles underlying the over-all pattern of structural development. The analysis of the history of linguistic structure rests squarely on the assumption that, if no other factors intervened to disturb the development of sounds, they would change regularly. This is never the case in real life; but, as has often been pointed out, it is this assumption (like those of Newtonian physics¹⁸) which enables us to sort out the disturbing factors.¹⁹ The example of Schuchardt's opposition to the Neo-Grammarians, coupled with Johannes Schmidt's "wave-theory" and the findings of Gillieron and later linguistic geographers, implanted in Romance linguists a seemingly ineradicable mistrust of the hypothesis of regular sound-change and of the comparative method which rests thereon.²⁰

In line with Schuchardt's and others' conception of the relation between Latin, "Vulgar Latin," and Romance, the development of the last-mentioned out of Latin has usually been conceived as taking place in the fashion shown in Figure 2. Yet this conception of the history of Latin and Romance is, in its turn, unsatisfactory. The term "Vulgar Latin" is too elastic, and has been criticized from various points of view. Those who believe in the existence of *états de langue* are unhappy because there is no single point in time or space to which "Vulgar Latin" can be ascribed. Even non-believers in *états de langue*

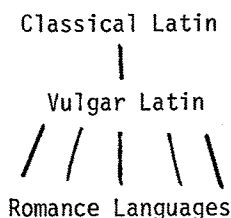


FIGURE 2
GOING BACK TO LATIN
(STAGE 2)

consider that the term has been used to cover too wide a period of time (over a thousand years), from Plautine or even pre-Plautine times²¹ to the Merovingian period,²² and too wide a range of sociolects, from the informal speech of educated men like Cicero and Horace to the low-class usage of the Suburra or the docks, or the mixed vulgarity and pretentiousness of social climbers like Trimalchio.²³

It is my contention that we must distinguish sharply between Popular Latin, in its manifold varieties, on the one hand, and what we can reconstruct as the speech out of which the Romance languages developed, i.e. PROTO-ROMANCE by definition, on the other. The latter can, I believe, be ascribed to a more clearly defined period of time than the traditional proteiform "Vulgar Latin" — roughly speaking, the first century B.C. How do we reach this conclusion? — by two procedures. First, we must reconstruct Proto-Romance by the comparison of the various Romance languages, with whatever intermediate stages can be reconstructed, and with the help of the earliest available attestations of the languages involved. This could be done, as is perforce the custom with other language-families, with no reference to what is attested for Latin. With these latter, however, we have no attestations from earlier times available against which to check our reconstructions. In the case of Romance, we have a very closely related language — not identical, but quite similar — in the form of Classical Latin and what evidence there is for non-classical Latin as well. (For this reason, I have been arguing for some decades that we must regard Classical Latin as a "sister," not a "mother," of Proto-Romance.) There is, therefore, no reason for refusing to take into account the evidence furnished by attested Latin,²⁴ once we have taken the first step in the proper order, namely reconstructing Proto-Romance. Since Sardinian is, in many respects, the most archaic of the Romance languages, its evidence must of course be included wherever possible. If, in any particular instance, Sardinian fails us,

Classical Latin can often be used as a substitute.²⁵

The common ancestor of Proto-Romance and Latin must be regarded, I think, as falling between two fairly well-defined periods of time. (Not points of time, since no one ever rang a bell and proclaimed "Hear ye! Hear ye! The pre-Classical period is now over and Classical Latin has begun!".²⁶) The latest period we can consider, as a *terminus ad quem*, is the time when Classical Latin was not yet a distinct variety used by *literati* with the attitude summarized by Horace in his verse *Odi profanum vulgus et arceo*,²⁷ as opposed to the usage of the common herd who thronged the streets of the Forum valley from the lower to the upper Janus (*Janus summus ab imo*²⁸). The slightly pre-Classical Latin of this time still admitted certain features, such as the old feminine genitive singular in *-ās* and the passive infinitive in *-ier* attested in, say, Ennius and Naevius but barred by Cicero and the Augustans.²⁹ As *terminus a quo* we must put the monophthongization of /ei/ to /i/, which took place around 150 B.C.³⁰ Rhotacism, the replacement of intervocalic single /s/ by /r/ (as in */a_uso·sa/ > */a_uro·ra/ 'the dawn-goddess' or */hono·sem/ > */hono·rem/ 'honor'), was already complete by ca. 350 B.C.³¹ For this stage, post-rhotacistic and post-monophthongal, I have proposed the term "Gracchan Latin," since its dates (ca. 150-100 B.C.) correspond roughly to the times of the brothers Tiberius and Caius Gracchus.³²

Here again, we must be careful to avoid terminological confusion, since it has recently been argued³³ that we are to regard "Classical Latin," not "Vulgar Latin" or Proto-Romance, as the ancestor of the Romance languages. If, with the term CLASSICAL, we are referring to the narrowly defined variety used for literary purposes by writers from the time of Caesar and Cicero onwards, this will not do, since there are too many phenomena (discussed in all grammars of the Romance languages) present in this variety of Latin and absent from Romance, and too many absent from Classical usage and found in Romance. If, on the other hand, we extend the term CLASSICAL to include also the time of Ennius, Naevius, and Lucretius (or still farther back, to Plautus and Terence), we may agree, provided some special term is used if my expression "Gracchan Latin" does not meet with favor. "Early Classical" or "Late Pre-Classical", as distinguished from "Old" (= pre-Plautine), might perhaps do as qualifying adjectives. I suggest, therefore, that we re-draw our "family-tree" once more, as shown in Figure 3.

If we accept the first century B.C. as the farthest back that we can go in reconstructing Proto-Romance, this gives us a time-span of approximately two thousand years for a group of languages as closely related as are those of the Romance family. This time-span can be pushed back a couple of hundred years if we add data from Classical Latin to bring us back to Gracchan

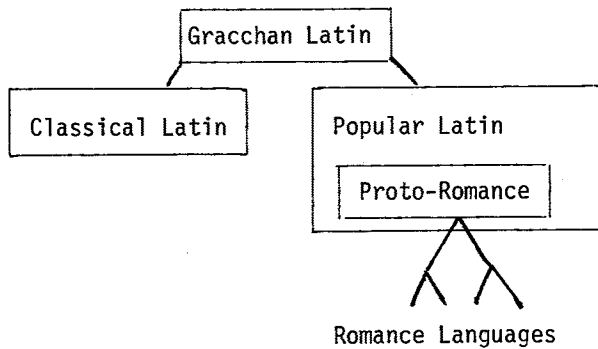


FIGURE 3
GOING BACK TO LATIN
(STAGE 3)

Latin. Certainly we cannot go farther back than 350 or 400 B.C., the time of rhotacism, giving us a time-depth of perhaps twenty-four hundred years at the most. Proto-Italo-Western Romance ("Vulgar Latin" in its usual sense of the ancestral form of Italo-, Gallo-, and Ibero-Romance) can realistically be assigned to the period from A.D. 200 to 500, which gives us a time-depth, for that sub-group, of fifteen hundred years or a trifle more.

Of what use are these conclusions for the theory of comparative method in general? I do not know of any trustworthy way of quantifying the degree of relationships in any given language-family, with regard to either lexicon³⁴ or grammatical structure.³⁵ Any suggestions that I or anyone else can make are therefore purely impressionistic, until someone devises a valid arithmetical technique for estimating such relationships. I have, for example, the impression that the Central and Eastern Algonquian languages are about as much differentiated as the Romance family, with Blackfoot rather isolated and far-out, as Roumanian is in Romance. The Central Algonquian languages seem to me to be, as a group, about as closely related as those of Italo-Western Romance, with Fox perhaps comparable to Italian in conservatism, and Cree to French in development. Algonquianists are inclined to place the period of Proto-Central-Eastern Algonquian about three thousand years ago, and Proto-Algonquian still farther back.³⁶ Our Proto-Indo-European, reconstructed on the basis of languages which are considerably more different from each other than are the Romance languages, is normally placed somewhere between five and six thousand years ago.³⁷ Indo-Hit-

tite, if such a stage existed (I see no real reason to doubt that it did), would belong even farther back.³⁸ Somewhere between two and two-and-a-half millennia, however, would seem to be nearly the farthest back in time that the comparative method will take us for a group of languages as closely related as those of the Romance family.

What proportion of the structure of a proto-language will reconstruction give us? Again, there does not exist, to my knowledge, a strictly quantitative method for determining mathematically accurate percentages. It seems clear to me that the comparative method gives us virtually all the phonology, a large part of the inflection, the essential features of syntax (but probably not many of the fine points), and a large part of the basic every-day lexicon. If I am pressed for numerical percentages, I would submit, with considerable diffidence, the following:

Phonology	95-98%
Inflection	80-85%
Syntax	60%
Lexicon	70-75%

In the phonology of Proto-Romance, for instance, we find that the traditionally reconstructed nine vowels, two semi-vowels, and twelve consonants are all confirmed by what we find by "looking at the back of the book," i.e. at attested Latin.³⁹ The nine vowels break down further into five basic vowels plus a component of tongue-height or tenseness applying to four out of the five: /i e o u/, but not to /a/.⁴⁰ Applying the principles of internal reconstruction,⁴¹ we would be inclined to suspect, even if we had no "sister language" to help us out, that at an earlier stage this component could occur with /a/ as well. There is a wide-spread, but not total, correlation between the presence of tenseness and that of stress in free syllables in reconstructed Proto-Romance, so that we find, say, 1038 /amí^ku/ 'friend', but 45 /iú^dike/ 'judge', 46 /sálike/ 'willow', and also 26 /uírde/ 'green', but not forms of the type */iúdi^key/ or */fénentu/, nor yet */salíke/. We find, say, 253 /sagitta/ 'arrow', but not */ságitta/. This would suggest (even if we didn't know it from "the back of the book") that the partial automaticity of the placing of stress in Proto-Romance might well have grown out of an earlier state of affairs in which stress was wholly determined by the position of /~/ or of some feature such as vowel-length which had been replaced by /~/.⁴²

Similar considerations apply to what we can reconstruct of Proto-Romance inflection and syntax. For the substantive-system of Proto-Romance we can reconstruct six cases, of which two (the oblique and the nominative) are widely represented in the later languages, and the other four are scattered but ascribable

beyond a doubt to the proto-language.⁴³ We can reconstruct three major declensions (those with the stem-vowels /-a/, /-o ~ -u/, /-e/) and three others for which there is fragmentary evidence, so that the whole corresponds to the six declensions of Latin.⁴⁴ For verbal inflection, the four reconstructible conjugations of Proto-Romance (in /a/, /e/, /e~/ and /i~/) include most of the verbs which fell into seven conjugations in Classical and earlier Latin.⁴⁵ With the help of Sardinian, all the simple tenses of Proto-Romance are recoverable, as are two participles (present active and past passive) and the verbal adverb (gerund).

In syntax, the basic clause- and phrase-types are reconstructible, with the finite verb as the essential element of the predicate. I do not doubt but that such a sentence as 1432 /tónat/ 'it thunders' could occur in Proto-Romance without any subject possibly accompanying it (in its literal meaning). The subject was, as in Latin and the conservative modern Romance languages (but not modern French), an optionally added element explicating the person-and-number reference of the finite verb: /kántat/ 'he, she, it sings', amplified by the subject in the nominative in, say, /(il)li^ ómo kántat/ 'the man SINGS', or /kántat (il)li^ ómo/ 'THE MAN sings'. Phrase-types are likewise reconstructible in their main outlines — endocentric (nominal, adjectival, verbal, etc.) and exocentric (especially PREPOSITION + OBJECT, in the oblique). There may, however, have been a number of subtleties, in such matters as the use of the subjunctive in subordinate clauses, which escape us.

In the lexicon, we can reconstruct somewhere between five and ten thousand words, most of them belonging to the sphere of every-day life, such as 440 /amáre/ 'to love', 687 /laktú^ka/ 'lettuce', or 173 /béne/ 'well'. Undoubtedly a number of words which once had every-day circulation in the first century B.C. were lost for various reasons. There were also regional variations, so that what was understood in one part of the area where Popular Latin was spoken at that time would not have been understood in other parts — as in, say, the words for 'day', /dí^e/ in some regions and 876 /diúrnu/ in others. This is the normal situation in all languages, and need not worry us when we are dealing with a reconstructed proto-language. Some years ago, a group of students and I took the main outline of the story of Orwell's *Animal Farm* (because of the prevalence of every-day vocabulary) and put it into narrative form in reconstructed Proto-Romance. I have no doubt but that if we could, by some magic, return to (say) 50 B.C. in a "time-machine" and read this text to ordinary people of those days, they would consider its Latinity atrocious, but would understand it without difficulty.

The example of Proto-Romance can give us some idea, at least, of how realistic a result can be achieved by comparative

reconstruction at a time-depth of approximately two thousand years. To my way of thinking, the results are encouraging enough to justify us in regarding the comparative method as basically valid. Its results give us, not only a schematic representation of abstract correspondences, but also a good picture of actual human beings' speech. This justifies us, I believe, in continuing to apply the comparative method to groups of languages which are obviously related but where we have no attestations of a "sister-language" of the proto-language such as we have in Classical Latin for Romance or in Sanskrit for Indo-Aryan.⁴⁶

NOTES

1. E.g. Pedersen 1931:12-13; Bloomfield 1933:11-17; Robins 1968:169-192.
2. Cf. Dante, *De vulgari Eloquentia* l.ix.11, and the discussions of his views in Vitale 1960 (1978²):15-20; Grayson 1965; Jernej 1971.
3. E.g. by J. J. Scaliger (1540-1600); cf. Tagliavini 1963:36; Robins 1968:166-167.
4. Cf. Tagliavini 1963:48-50.
5. Cf. Bloomfield 1933:9-10.
6. Cf. Tagliavini 1963:49, 74-77.
7. Cf. Bloomfield 1933: ch. 20; Hockett 1958: ch. 52; Hall 1964: ch. 50.
8. Cf. Turgot 1756 (1961): 5; also Hall 1964/65.
9. For instance, it was definitely shown that Keltic belonged to the Indo-European family; cf. Pedersen 1931:53-63. Similarly, in Romance, Roumanian was shown to be a Romance, not a Slavic language; cf. Tagliavini 1949 (1972⁶):5.
10. This was the position of the late Mario Pei (1965) and of others, e.g. Y. Malkiel (1964:672), with the expression "the thoroughly documented parent language, Latin itself"; cf. also Roncaglia 1950.
11. Bruni maintained that the language of the Roman *plebs* was as different from Ciceronian Latin as was the Italian of his own day, and that the populace could not have understood, say, the orators in the Roman Forum. Biondi, on the other hand, viewed the two varieties as having noticeable differences, but still being mutually intelligible. Cf. Vitale 1960 (1978²): 22-23.

12. Some scholars have considered that certain authors, e.g. Horace and Catullus, included some colloquial or slang expressions in their poetry; cf. Bourciez 1927; Bonfante 1937.

13. Cf., for Plautus, Skutsch 1892; for Terence, Wahrmann 1908.

14. Cf. any discussion of "Vulgar Latin," from Grandgent 1907 to Väänänen 1963 (1967²). For the relation of "vulgarisms" and archaisms, cf. Ronconi 1957 and Marin 1974.

15. Schuchardt 1866-68.

16. Cf. also Hall 1976b.

17. Cf. Hall 1957:157-158; 1963:10-17.

18. Cf. Hall 1946b:279, fn. 17.

19. Cf. Hall 1964/65.

20. Cf. the extensive discussion in Jordan-Orr-Posner 1970.

21. E.g. by Altheim 1932. Leonard (1969) goes even farther, wanting to push the date of Proto-Romance back to the fifth or sixth century B.C.

22. By Muller (1929) and his followers, such as Taylor (Muller and Taylor 1932) and Pei (1976: ch. 4, 5).

23. Cf. most recently Väänänen 1969.

24. As suggested, for instance, by Ferguson 1976.

25. As I have suggested in Hall 1976a:17.

26. A wise-crack modeled on Bloomfield's remark about the Neogrammarians and sound-change (1932:229-230).

27. *Carmina* 3.1.1.

28. *Epistles* 1.1.54 — i.e. from the Janus Quadrifrons in the Forum Boarium to that in the Forum Transitorium, through the Vicus Tuscus, the Forum, and the Argiletum; cf. Holland 1961: 42-44.

29. Cf. Devoto 1944:112-113.

30. Cf. Kent 1932 (1945³): 90 (§ 110.I,II).

31. Cf. Kent 1932 (1945³): 132-133 (§ 166.I,II).

32. Hall 1974:16, 71.

33. Mańczak 1974, 1977.

34. Morris Swadesh's "glottochronology," which at one time seemed promising, has proven valueless; cf. the criticisms of Gudschinsky 1956, 1966 and of Trager 1966.

35. There have been various attempts at quantifying the degree of relationship by counting the number of grammatical features present or absent in the various Romance languages, as done by, say, Pei 1949; Agard and Grimes 1956; Muljačić 1967. The choice of features to be counted, however, and the relative weight to be assigned to each, have always been arbitrary.

36. C. F. Hockett (personal communication).

37. Cf. Buck 1933:2.

38. Cf. Sturtevant 1962.

39. Classicists have been accustomed for a long time to rely on reconstructed Proto-Romance for evidence concerning such

phenomena as "hidden quantity."

40. Cf. Hall 1976a:§ 2.3.

41. For the theory of internal reconstruction, cf. especially Hoenigswald 1960:99-111.

42. Cf. Hall 1976a:§ 3.21. In the following paragraphs the numbers preceding reconstructed Proto-Romance forms are those assigned to these lemmata in Hall 1976a.

43. Including the partitive, equivalent to the Latin ablative; cf. Hall 1968; Messing 1972.

44. Cf. Hall 1946a.

45. Cf. Hall 1978.

46. For the parallel between Romance and Indo-Aryan, cf. most recently Rayall 1969.

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PROJECTION FROM PROSODIC CONSTRAINT

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One of the most common forms of consonant shifting is that involving the fortis-lenis scale. In the history of Germanic alone, we are faced with two major shifts, both occurring along this scale; in the history of Welsh, such shifting has occurred not so much in specific periods, but throughout the development of the language; in the histories of many other languages, such as Greek and Spanish, moreover, shifting occurs in perhaps a more limited degree or scope, but it occurs nonetheless along the fortis-lenis scale.

Perhaps the best known example of such shifting can be seen in what has traditionally been termed the First Germanic Sound Shift, in which, in segmental terms, proto-Indo-European [ḍ] (to use the dental series as representative) becomes Germanic [d], [d] becomes [t], and [t] becomes [θ]. In some contexts, though, [t] becomes [d]. Thus, for example, the allegedly more conservative Latin pedis [pedis] 'foot (genitive)' corresponds with Gothic fōtus [fo:tus] (and indeed with English foot). (While I may disagree with the supposed direction of the shift on the basis of phonetic considerations and markedness criteria [see Griffen 1978], this shift does adhere to the fortis-lenis scale whatever its specific direction.)

In the Welsh linguistic tradition, historical changes and even synchronic alternations within this fortis-lenis scale have come to be called lenition and provection (used here to include spirantization). Lenition is a change from one degree along the fortis-lenis scale to a weaker degree, as in the change from Old Welsh can(t) [kan(t)] 'with' to Modern Welsh gan [gan], and provection is a change from one degree to a stronger one, as in the development of the noun lletyb [lɛtɪb] 'doubt' from the verb form lled-dybio [lɛddəbio]. Of the two, lenition has been by far the more easily explained, for its "weakening" environment is usually quite transparent. As noted by Meillet, "Certain principles of change are universal; for example, one will not be surprised to see the tendency to reduce the finals, to see intervocalic consonants undergo the influence of neighboring vowels and thus be made like them by becoming voiced or by losing a part of their closure" (1970:9).

Provection, on the other hand, presents the linguist trying to account for this change with definite problems. For one thing, while the idea of weakening due to vocalic environment may be more or less intuitively obvious with or without regard to any fortis-lenis scale, the idea of "strengthening" brings the scale

into a more rigorous scrutiny--a scrutiny which soon reveals the fact that until now researchers have not had a clear picture of just what this fortis-lenis scale is and indeed of whether such a thing even exists. Furthermore, again unlike the rather straightforward environmental motivation for lenition, provection appears to occur in environments which are apparently contrary to what one would suppose to be the usual phonetic alternations and certainly beyond the descriptive capacity of the notational conventions in segmental phonemics, as shown below.

In Welsh, which is rich in such propective changes and alternations, provection is associated primarily with gemination (and other combinations) and aspiration. For example, the term gwastatir [g^wastatir] 'plain' is derived from the combination of gwastad [g^wastad] 'flat' and dir [dir] 'land (soft mutation)' (see Morris Jones 1913:182; Morgan 1952:25). Further up the scale, proto-Welsh *Britton [britton] 'British', recorded by Bede as Brettones, corresponds to Modern Welsh Brython [brəθon] (Jackson 1953:567), as Welsh llythyr [lⁱəθir] 'letter' is derived from Latin litteras [litteras]. Insofar as aspiration is concerned, the word ateb [ateb] 'answer', for example, is derived from the combination of ad [ad] 'again' and heb [heb] 'say (archaic)' (see Bwrdd Gwybodau Celtaidd 1942:52).

In modern alternations, we also find productive examples of provection. For example, Fynes-Clinton notes that the phrase gwybod dim 'not to know' is actually pronounced in the Bangor district [gubot tim] (1913:xxiii), and he (xviii) and Morris Jones (1925:206) note the pronunciation of ei thad hi 'her father' as [i θa: ti]. Such provection, or hard mutation (treigladau caled), is an integral part not only of daily speech, but even of the strictly alliterative poetry, the cynghanedd. For example, in the line Onid hardd : dy henwlad di? 'Is it not beautiful, thine old land?' cited by Roberts (1973:48), alliteration is maintained in the dentals, for in each case provection applies. Thus, the line may be transcribed as [oni tarð : də henl^wa ti] (see Griffen in press).

What can be seen in these examples, then, is a problem for phonology. As noted above, the fortis-lenis scale's very existence as a viable phonetically based opposition may be questioned, as a single environmental factor (gemination, among others) may coincide with a change from [d] to [t] and also with a change from [t] to [θ], the first involving voicing and the second involving frication. Beyond this, even if these types of change could be unified by one phonetic characteristic, the processes involved in changing at least two segments to one other segment of higher strength through such operations as gemination and aspiration overtax the notational capabilities if not the basic principles of segmental phonology (phonemics).

The problem of accounting for these changes through the inner approach of Jakobson and Halle (1971:19) has brought about a curious reversion to the outer approach, particularly by Foley, who maintains, "The system of distinctive features used in transformational phonology, based on acoustical analysis, cannot

handle satisfactorily historical change in which shifts occur in whole series of elements. An alternative system, based on phonological relations, can comprehend these transpositions, thus achieving insight into the nature of phonological change" (1970: 87). This complaint with regard to historical change he later enlarges to the entire scope of phonology: "The need for a phonological theory is evident from the failure of transformational phonetics, hitherto the most sophisticated of linguistic systems, to provide a theoretical framework for understanding phonological problems" (1977:3).

Of course, Foley's attack on "transformational phonetics" contains a classic rhetorical device. In maintaining that there is no other school of linguistics that can vie with the transformational generative (other "generative" models being only "conceivable"--1977:3), his model is the only alternative; and as the transformational generative school is wrong, he is therefore necessarily right. Needless to say, both conclusions are entirely false. (I should hasten to add, by the way, that it is also entirely false to conclude from my pointing this out that I support the transformational generative school either.)

While few linguists would go so far as Foley, some limited support for the outer-approach view has been extended from some rather surprising circles. Indeed, Vennemann and Ladefoged (1973:67) propose cover features which they describe as being the same as Foley's in precisely this area of the fortis-lenis scale. Although such cover features may serve to give a superficial description for change along the fortis-lenis scale, they do nothing for a real accounting of protraction, but simply shift the problem to the phonological level of segmental description, where change is supposedly motivated by some nebulous psychological considerations.

One reason why the fortis-lenis scale in general and protraction in particular have been such problems in phonology and especially in historical change is that they have been described traditionally in models consisting of discrete segmental units. Actual speech, on the other hand, is nonsegmental in nature, and phonetic models constructed in accordance with this fact have succeeded where segmental models have failed--in the prediction of the real speech event (compare Mermelstein 1973, 1975; Ohman 1966, 1967; etc.). Working from the basis of these models of dynamic phonetics, I have been constructing an hierarchical non-segmental model of phonology (see Griffen 1975a, 1976, 1977) which should alleviate these and other such problems which have resulted from the fact that segmental phonology (phonemics) is based on the assumptions of orthography rather than on the observations of speech itself.

Rather than being organized into segmental bundles, the features in this model are organized in accordance with instrumental phonetic observations into a system of coarticulatory hierarchical constraint--some features and feature types constrain other features and feature types in opposition over time. The basic

organizational unit of the system is the syllable, and the syllabic frame within which the features are organized can be graphically represented as in the accompanying diagram (on the following page). Briefly, from a physiological point of view, the airstream is constrained at the larynx to create a pattern of phonation, this phonation pattern is further constrained by the configuration of the vocalic articulators (jaw height, lip protrusion, tongue-body position) in syllabic units, and the phonated and syllabicated airstream is constrained by the consonantal obstruction articulators. Each of these three divisions is further constrained by its own set of prosodies in a hierarchy of coarticulatory relationships.

Of particular importance to this investigation is the obstruction division, made up of the basic obstruction opposition (representing the position of obstruction) and the obstruction prosody (constraining the particular obstruction opposition member but not inherent to it). For example, in Welsh the difference between the initial obstructions in tŵr [tu:r] 'tower' and dŵr [du:r] 'water' has nothing to do with the obstruction opposition member itself, but is a product of the fact that the former is constrained by one degree of an obstruction prosody and the latter is constrained by one degree less of the same prosodic opposition. In the functioning of the Welsh morphophonological system, moreover, tŵr may be realized as dŵr through a relationship known as soft mutation, the realization of the next lower degree of the prosody; while in the same grammatical environments, dŵr is realized with the next lower degree as ddŵr [ðu:r].

As can be seen in this example, the basic prosodic opposition of the Welsh obstruction division is at least isomorphic with the traditional fortis-lenis scale relating the nonsense syllables [ða], [da], [ta], and [θa]. Although a segmental accounting of this relationship in concrete phonetic terms has not been possible, when we view the speech event in dynamic, nonsegmental terms, it is quite natural, developing from the general system of constraint within the syllabic frame. A nonsegmental analysis of the fortis-lenis scale can be found in Griffen 1975a and 1977, though a very brief summary is provided here in the context of the problem at hand.

Typical of fortis-lenis systems, Welsh exhibits changes and alternations by which the same processes which relate [ta] with [da] also relate [da] with [ða], as noted in the example just cited. Moreover, as pointed out in the examples at the beginning of this treatment, the same processes which relate [da] with [ta] also relate [ta] with [θa]. Insofar as those processes which are productive are concerned, these relationships can be accounted for through glottal frication, or overt aspiration, in a significant number of cases (as demonstrated in detail in Griffen 1975a: chapters 7 and 10). In the general behavior of this fortis-lenis scale, we can see that the weaker realizations constrain the vowel less than do the stronger. Indeed as pointed out by Meillet in the passage cited above, the historical process of lenition (weakening) serves to make the consonant more like the

vowel, in traditional terms. Thus, we must combine three characteristics of the fortis-lenis scale (at least as it is realized in Welsh) in order to conduct an investigation of its phonetic parameters: (1) it consists of a gradual scale of opposition members; (2) it is characterized by some form of aspiration; and (3) it can be measured through the degree of constraint.

Examining these characteristics in the framework of this nonsegmental phonology, we should look for the phonetic basis for this type of fortis-lenis scale in an obstruction prosody representing a gradual opposition involving the aspirate articulator and realized as an increasing constraint on the syllabic vowel. While all such investigations are necessarily in the realm of hypothesis, there does appear to be physiological and acoustic evidence for this scale to be found in the behavior of the orifice of the larynx and in a high-to-low frequency ratio.

Physiologically, aspiration is related with whisper as a function of the constraint of the vocal cords--the less the constraint, the less vowel-like (at least in a language with only voiced vowels). According to cineradiographic studies by Perkell (1969:36-7), the size of the opening of the orifice of the larynx at 75 milliseconds before release increases in a fairly neat progression through the nonsense words [hə'zɛ], [hə'dɛ], [hə'tɛ], and [hə'sɛ], where these sounds correspond in degree of constraint with those in Welsh. (The measurements are approximately 4.1 mm, 5.6 mm, 7.2 mm, and 9.4 mm, respectively.)

Acoustically, aspiration is associated with high frequency noise on the spectrogram, as the lower formant frequencies are associated with the vowel. In a spectrographic study of the Welsh nonsense words [ðahað], [dahad], [tahat], and [θahaθ] (in Griffen 1975a:chapter 10), it is shown that the ratio of high-to-low frequency energy associated with obstruction or obstruction release increases gradually along the scale. This behavior would certainly converge with the physiological hypothesis implicit in the data of Perkell.

Taking this into consideration, we can construct a set of relationships based on this broad concept of aspiration to account for the Welsh fortis-lenis scale in [ða], [da], [ta], and [θa]. In the basic obstruction opposition, all four would be realizations of the dental obstruction. The first would be constrained by the first degree of prosodic aspiration, the second by the second degree, the third by the third degree, and the fourth by the fourth degree. Any change in degree of aspiration, while it may be of extreme importance to the segmentalist's perception of the manner of consonantal articulation, has no bearing upon the obstruction opposition member itself, but is an independent though coarticulated prosodic feature.

When we plug all of this information into the syllabic frame, the phenomenon of protection ceases to be a problem. For the development of ateb [ateb] from ad [ad] and heb [heb] (cited above), we should first describe the earlier syllables in their syllabic frames. Ad consists of the syllabic vowel finally constrained by a dental obstruction further constrained by the

second degree of prosodic aspiration; heb consists (partially) of the syllabic vowel initially constrained by the glottal frication of aspiration. When the two are joined, the dental obstruction is free to shift to the favored initial obstruction position of the next syllable, for there is no obstruction as such in initial position of the next syllable to block this shift, the aspiration being properly a prosody. When the dental obstruction shifts, however, the second degree of aspiration constraining it also shifts and combines with the aspiration already in the initial obstruction prosody position, raising the degree of prosodic constraint to the next higher member of the opposition. The dental obstruction, which has not changed at all, is now simply constrained by the higher degree, and the result is one syllable [a] with an unobstructed syllabic vowel and another syllable [teb] with the syllabic vowel initially constrained by a dental obstruction further constrained by the third degree of aspiration. The change represented here, then, is fundamentally one of syllabication, with no significant addition or loss of any feature element--simply a coalescence.

While provection from aspiration could be handled in more traditional prosodic analysis (see Griffen 1975b), provection from gemination can only be described in a more prosodically based system (one without "sounds"). For the development of gwastatir [g^wastatir] from gwastad [g^wastad] and dir [dir] (cited above), we should again describe the affected syllables in their syllabic frames. -tad consists (partially) of a syllabic vowel finally constrained by a dental obstruction further constrained by the second degree of prosodic aspiration; dir is initially constrained by the dental obstruction further constrained by the second degree of prosodic aspiration. When the two syllables are joined, the central dental obstructions may coalesce into the favored syllable-initial obstruction position, for they are homorganic. When two homorganic basic obstruction opposition members are coalesced into one position, there can be, of course, no alteration in the obstruction itself (the position of constraint). On the other hand, when two obstruction prosodies are coalesced into one position (bearing in mind that these are features in their own right and not inherent to the obstruction itself), their degrees are combined (as in the previous example) to yield the next higher member of the opposition. Thus, we end up with the dental obstruction constrained by the third degree of aspiration. Once again, the change is one of syllabication, with no significant addition or loss of any feature element--just a coalescence.

Provection is thus far from a nebulous psychologically based change, but a concrete phonetically based development. When viewed from a nonsegmental standpoint, it does not involve a transformation of two segments into one in a manner more ad hoc than explanatory, but rather it involves natural physiologically and acoustically justifiable processes. Physiologically, we find an additional aspiration reflected by an additional width of the orifice of the larynx to express a combination of aspirate

elements; and acoustically, we find the resultant combination of degrees of high-frequency noise to raise the high-to-low frequency energy ratio. Thus, one generation may interpret the auditory stimulus provided by the previous generation in such a way as to yield protection, as indeed one generation may establish alternations, such as those in the alliterative poetry, making use of this protection--entirely based in phonetic reality.

That precisely this tactic of change could be employed, moreover, can be seen in the historical data from Welsh. As noted by Morris Jones (1913:182), John Jones, who flourished between 1590 and 1630 during the period of Early Modern Welsh, wrote, "Two /b/ standeth in force of /p/....mab byxan most being pronounced as if ytt were wrytten mab pyxan." While Jones recognized, then, that the geminate [b] was pronounced as if it were written p, he nonetheless wrote -b p-. This fairly wide-spread writing practice in Early Modern Welsh may indeed suggest that the historical change involving protection was gradual, with the prosodic feature dynamically spreading over the following obstruction as the obstructions were coalesced in the transmission of the language between generations.

By using a nonsegmental model based upon dynamic phonetic evidence for the description of protection, then, we can account for this traditionally bothersome type of change without the necessity of invoking abstract rationalizations. Such a description is preferable to the traditional segmental approach, not only because it adheres to phonetic observations and maintains consistency with the inner approach, but also because it relies solely on features instead of on phonemes--in keeping with what most schools of phonology claim to prefer and even to demand.

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ATTRIBUTIVE ADJECTIVES AND RULE CONSPIRACIES:
ONTOGENY RECAPITULATES PHYLOGENY

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As interest in the role of syntactic typology in language change has increased, linguists have observed that the prenominal position of Modern English adjectives constitutes an anomaly in a VO language. Lehmann (1973:56-7), for example, in his discussion of typological classification, states:

We must label English as VO on the basis of its comparative construction and the gapping of verbs with objects, and because of the normal VO order. Yet English is inconsistent in having adjectives precede nouns. . . . We may therefore conclude that English has been changing from an OV language to a VO language, and that some OV characteristics have not yet been eliminated, such as the position of adjectives before nouns.

Lehmann's assumption that prenominal adjectives will eventually disappear from English sentences is implicit in his conclusion that "some OV characteristics have not yet been eliminated, such as the position of adjectives before nouns." (*Italics ours.*) Though he assumes that English is now in transition from adjective-noun (A-N) sequences to noun-adjective (N-A) sequences consistent with its language type, the fact remains that A-N order has persisted in English during a millenium of typological shift. Though this fact alone does not ensure the future retention of A-N sequences despite their typological 'inconsistency,' we believe that A-N order may be preserved for reasons overlooked by Lehmann in the passage above.

Before we begin an examination of the synchronic and diachronic data ignored in Lehmann's characterization of English word order as A-N, however, some observations on the use of word order typologies to predict syntactic change may be in order. As the focus of his paragraph suggests, word order typologies have been employed largely in syntactic reconstruction. Reconstructions, like predictions about the future direction of syntactic change in a language, rely heavily on assumptions about which synchronic states are most probable in a language. As Ard (1977:4-6) has remarked while discussing the impact on diachronic syntax of Greenberg's (1963) studies on word order, ~~the~~ linguist reasoning typologically must beware of statistical fallacies:

. . . . Greenberg's study was presented in a terminological manner which somewhat concealed the statistical nature of his results. After all, he did not describe "statistically predominant patterns of word order" but rather "universals of word order", even though Greenberg's use of UNIVERSAL differs sharply from the most common interpretation--"something that is always true, not just usually true." It may well be that syntacticians felt more free to use results because they were "universals", if in name only.

. . . Statistical data of these and other types prove invaluable and unavoidable in historical reconstruction. Whenever a linguist proposes a reconstruction, she uses her knowledge of which changes and which synchronic states are the most plausible. It is nonetheless important to recognize that statistical data are involved in these decisions in order for the linguist not to be trapped by statistical fallacies. Statistical data require statistical methods.

Ard shows that applying Greenberg's 'universals' in concrete situations may be difficult due to the laws of conditional probability underlying statistics. There have been no statistical studies determining which of the universals are interconnected. Thus, while we may have grounds to assume the existence of any statistically more predominant construction in a given language type, we have no reason to believe that all universals prevail simultaneously in any one language. In fact, a typologically perfect language may be comparatively rare.

This methodological problem in the use of word order typology suggests that English may not shift from A-N order simply to achieve the N-A pattern generally found in VO languages. Furthermore, it casts some doubt on Lehmann's certainty that Indo-European was consistently OV, for there is as little reason to assume typological consistency in Proto-Indo-European as in Modern English. Such difficulties suggest that syntactic typologies, unsoundly based on statistical probabilities, may be a risky way of accounting for all disparities in word order by assuming their continuation from a hypothetical proto-language. We wish instead to direct our attention to actual patterns of modification in the English language, allowing the data at hand to suggest rules underlying word order.

Although Lehmann describes English adjectives as preceding nouns, postnominal adjectives have existed throughout the history of the language. It is true that Modern English postnominal adjectives (PA's) appear to have 'marked' interpretations, and Old English PA's are relatively infrequent. Nonetheless, the presence of N-A sequences in English provides

the means for a reanalysis of PA's as 'normal' and of their interpretations as 'unmarked'. English would then be rendered consistently VO.

However, this change has not taken place. Rather, English appears to have acquired during its historical development Modifier Preposing (MP) as an obligatory rule moving adjectives before their head nouns, and to have assigned to prenominal adjectives an interpretation commonly regarded as 'unmarked'--that of denoting relatively permanent attributes of head nouns. Hence, adjectival positions are now specialized for meaning: prenominal (attributive) adjectives (AA's) convey a sense of permanence, PA's a host of 'special' senses (including those of 'result', 'occasion', etc.).¹ The association of position with meaning may be a factor which blocks the reanalysis of English to a strictly N-A order, but such a hypothesis is purely speculative at this point.

For the present, we shall merely adduce the processes which derive AA's and PA's in English by means of transformational rules. We shall maintain that these processes may be revealed in part through a study of the morphological and syntactic patterns of English adjectives in earlier historical stages. Further, we shall argue that a number of rules conspire to produce adjectives aiming at A-N and N-A surface structure targets, that rules added to the grammar of English have contributed to this conspiracy, and that these targets exist because hearers and readers assign certain interpretations to them.²

Standard transformational analyses of adjectives (such as Jacobs and Rosenbaum, 1968 and Burt, 1971) derive AA's from underlying restrictive relative clauses containing predicate adjectives by means of two transformations, Relative Clause Reduction (RCR; also called WHIZ-deletion) and MP (also called Adjective Shift). RCR is an optional transformation which deletes a relative pronoun and a form of be from a relative clause; MP then applies obligatorily to shift nonbranching adjective VP's before their head nouns. This process would explain the synonymy of (1) and (2):³

- (1) The prince used to be a frog that was (very) charming.
- (2) The prince used to be a (very) charming frog.

(2) has been derived from (1) by means of (3):

- (3) a. The prince used to be a frog that was (very) charming.
- b. *The prince used to be a frog (very) charming.
- c. The prince used to be a (very) charming frog.

Because sentences containing AA's can more frequently be

paraphrased as sentences containing restrictive RC's than those containing restrictive RC's can be paraphrased as sentences containing AA's, (1) appears to be a plausible source for (2) and (3) a plausible derivation. As Zwicky (1974:216-17) has observed, however, some linguists are reluctant to accept derivations like (3), which produces an ungrammatical intermediate string. Such linguists would term (3)b. a "false step," since it must be "rescued" by MP:

. . . many people experience twinges over the English rule of WHIZ-Deletion. . . . For one-word adjectival phrases, the result of WHIZ-Deletion is unacceptable--*a man sick from a man who is sick--and has to be rescued by an Adjective-preposing rule. Some critics have felt that the 'unreal' intermediate stage should be avoided by restricting the application of WHIZ-Deletion, and by deriving prenominal adjectives directly from relative clauses with predicate adjectives--or by deriving prenominal adjectives from some other source altogether--as suggested by Winter 1965. Indeed, there is surprisingly little hard evidence for Adjective-preposing.

If there is "little hard evidence" for MP in Modern English, RCR appears to be well-motivated. Branching modifiers, such as (4)b., do not undergo MP; both (4)c. and d. are ungrammatical:

- (4) a. The frog who is reluctant to turn into a prince will refuse to be kissed.
- b. The frog reluctant to turn into a prince will refuse to be kissed.
- c. *The reluctant to turn into a prince frog will refuse to be kissed.
- d. *The reluctant frog to turn into a prince will refuse to be kissed.

Moreover, as Zwicky suggests, RCR may be a rule which reorders constituents "to fit some required surface order" (219)--in other words, a rule conspiring towards a syntactic target.

Diachronic evidence suggests that RCR is an intermediate step in the derivation of AA's from underlying restrictive RC's, for the obligatory preposing of 'unmarked' nonbranching adjectives has evolved only recently. In Old English the output of RCR was always grammatical, with MP applying only optionally to nonbranching adjectives. In (5), for instance, the underlined adjectival phrase has not been preposed:

- (5) and nænig god awunigende and ealle worldlicu þing swiðe synlicu.
 "and nothing god abides and all very sinful

worldly things do"

(Blickling, Cassidy and Ringler, 1971:198)

Adjectives in a series or conjoined adjectives demonstrate that MP was a stylistic option, for one adjective might be preposed while the other remained postnominal:

- (6) hy habbað swyðe lytle scyppa > swyðe leohte.
 "they have very little and very light ships"
 (Alfred, 1883:19, ll. 7-8)

(6) demonstrates that Old English, unlike Modern English, may not have differentiated between postnominal and prenominal adjectives, since leohte appears to have an attributive sense. Interestingly, Traugott (1972:158) observes that "prenominal position came to dominate for uncoordinated adjectives" in later Old English (*italics ours*), but this sequence of development is the reverse of that postulated by Lehmann (1973; 1974). Traugott contends that the incidence of PA's increased in Middle English, but she attributes this to the influence of French syntax:

- (7) Most instances of postnominal adjectives in Chaucer, for example, are of adjectives borrowed from French, suggesting that not only the lexical items but also their characteristic syntactic structures were borrowed; . . .

4.129 Ch. Mel. B.2188 the los of our othere
 goodes temporels.

4.130 PL II.28.2(1425) in alle haste resonable.

(7) also shows that adjectives in postnominal position in Middle English, whatever their source, continued to have readings denoting relative permanence, unlike those of Modern English.⁴ Later, such adjectives were to participate in the rule conspiracy deriving PA's and AA's, as we shall argue.

Other linguists have suggested that Modern English AA's are the product of a number of rule conspiracies. Vendler (1968) groups derived adjectives (those transformationally derived from nouns or verbs in underlying RC's) into thirteen subclasses based upon their 'natural' order in series and their derivational suffixes. Each subclass is the result of a distinct morphosyntactic rule conspiracy; thus, for instance, some -ful and -ble adjectives are "emotive", attributing to "the subject an emotional reaction evoked in a human" (118), and they have as their source 'evoke or cause N in someone' or 'Vfies someone':

- (8) a dreadful accident < an accident that evokes
 dread in someone

- (9) a horrible death < a death that horrifies someone

Levi (1976) observes that some AA's derive from underlying adverbials:

- (10) a good dancer < someone who dances well

According to Vendler (88-89), the derivational history of (10) may explain the ungrammaticality of the conjoined AA's in (11):

- (11) *a blonde and good dancer

Such systematic subclassifications, based on transformational histories, help to refute lexicalist analyses which explain the 'semantic idiosyncracies' of AA's on the basis of their lexical entries.⁵ Such 'idiosyncracies' result from the application of prelexical transformations.

Yet neither Vendler (1968) nor Levi (1976) explores the motivation a speaker or writer might have for using adjectives in place of their underlying RC's. As Stanley (1972) points out in her treatment of passivized prenominal adjectives, non-predicative adjectives are interpreted by hearers and readers as attributes of their head nouns, because their derivation renders deleted information relatively inaccessible to a reader. Stanley analyzes the use of the prenominal modifier imagined in the following passage from Skinner (1971:24):

- (12) It may seem inconsistent to ask the reader to 'keep a point in mind' when he has been told that the mind is an explanatory fiction, or to 'consider the idea of freedom' if an idea is simply an imagined precursor of behavior, . . .

She concludes that the reader, whose attention is focussed on the major predication of the clause, reads imagined as an attribute of precursor, for the rapid process of reading allows her little time to note that Skinner has implied that neither she nor anyone else truly possesses foreknowledge of her actions. The phrase is the output of the Passive, Agent Deletion, Relative Clause Formation, RCR and MP transformations:⁶

- (13) a. precursor - someone (the reader) imagines a precursor
 b. precursor - a precursor is imagined by someone (by the reader)
 c. precursor - a precursor is imagined
 d. precursor - which is imagined
 e. precursor - imagined
 f. imagined precursor

While (13)a. allows the reader to question the validity of the assertion that ideas are 'imagined', (13)f. does not; Skinner has

buried the assertion as a prenominal, erasing himself and couching a subjective judgment as an 'objective' characteristic.

Bolinger (1967:1-2), noting shifts in interpretation that result from moving adjectives from predicates to attributive positions, charges that generative linguists have been "a bit rash in adopting without much debate the Port Royal description of attributive adjectives." He further maintains (3-4) that the differences which exist between AA's and PA's are 'semantic', thereby invalidating any derivation of AA's from PA's by means of MP: AA's are unambiguously +characteristic, while PA's are unambiguously "occasion", so the derivation of AA's via MP requires that the transformation create a difference in interpretation:

- (14) Examples with -able are the most typical: The only river that is navigable is to the north does not tell us whether the temporary states of rivers are referred to ('The only river that happens to be navigable at the moment'), or the classes of rivers. But the only river navigable is unambiguously occasion, the only navigable river unambiguously characteristic.

Furthermore, the contrasting nonambiguous senses of navigable in (14), according to Bolinger, argue against underlying be-predications as sources of AA's and PA's, since one would have to posit an underlying ambiguity as the source of two nonambiguous sequences. This line of reasoning eventually leads him to conclude that "the attributive use. . . is the primitive one and the predicative is derived from it, rather than the reverse" (16-17).

Yet in analyzing navigable river as a phrase limiting the class of rivers and river navigable as a phrase denoting the temporary state of a river, Bolinger himself misses the obvious fact: he has been made to overlook the fact that the navigability of a river rests, among other things, on the capability of the navigators in question. (15)a. thus contrasts perceptibly with (15)b.:

- (15) a. He found the navigable river.
b. He found the river navigable.

but not in terms of the 'features' which Bolinger terms 'characteristic' and 'occasion'. Rather, the a.-sentence implies that the subject or someone else had predicted that the river would be navigable on the basis of past experience, whereas the b.-sentence implies a prior belief that the river might not be navigable, perhaps on the basis of prior experience. Thus, (16) a. and b. are paraphrases of (15)b., but not of (15)a.:

- (16) a. He found that he could navigate the river.
 b. He found the river to be navigable.

In choosing sentence structures like The only river navigable is to the north or The only navigable river is to the north, a writer restricts his reader to a universal judgment that the river is permanently or temporarily navigable, because no agent is available within the sentence (unlike (15)b., for example). Agents are available for (15)a. and b., however, which have the following underlying conceptual strings, respectively:⁷

- (17) He found the river which he (or somebody) believed (said) he (they) could navigate.
 (18) He found he was able to navigate the river which he (somebody) had believed everyone (him) to be unable to navigate.⁸

We attribute the contrastive readings of (15)a. and b. to their positions, not to any 'semantic features' inherent in the word navigable, and we would argue that navigable river is derived by a process comparable to (13), with a morphosyntactic rule affixing -able--precisely because the passivized adjective will then be interpreted as 'describing' the noun which it precedes.

Although some linguists (Bolinger, 1967; Winter, 1965) may reject the "Port Royal description of attributive adjectives," Dorothy Richardson, a creative writer, was evidently aware of the use of AA's to collapse two assertions by transforming one into a supposed 'characteristic' of its head noun. One of her characters speculates in the following associative passage (1967:II,407-8) on the purpose of using dangerous as an AA:

. . . . "There is a dangerous looseness in the fabric of our minds." She imagined the words spoken, "looseness" was ugly, making the mouth ugly in speech. There is a looseness in the fabric of our minds. That is what he would have said in conversation, looking nowhere and waiting to floor an objection. "There is a dangerous" he had written. That introduces another idea. You were not supposed to notice that there were two statements, but to read smoothly on, accepting. It was deliberate. Put in deliberately to frighten you into reading more. Dangerous. . . . People who read books do not think about adjectives. They like them. Conversation is adjectives. . . . All the worry of conversation is because people use adjectives and rush on. . . . But you can't describe. . . but "dangerous" is not a descriptive adjective. . . . "There is a twisted looseness," that describes. . . that is Saxon. . . Abendmahl. . . dangerous, French. . . the Prince of Wales uses the elegant Norman idiom. . . .

"Dangerous" is an idea, the language of ideas. It expresses nothing but an opinion about life. . . a threat daring you to disagree. Dangerous to what?
(Italics and ellipses in original)

As Richardson's observations suggest, AA's allow a writer to omit information by means of transformational deletions, but the careful reader can recover them. This fact supports a transformational account of the derivation of adjectives.

Nontransformational linguists have noted that adjectives may function as passives; Jespersen (1965:169), for instance, remarks that some adjectives are passive (e.g., navigable), while others are not. Strang (1970:135) observes that some adjectives in the "sense-family" may have both active and passive uses; sensible, for instance, has both:

- (19) a. Frances was a sensible young woman.
b. Sensible objects are capable of being perceived by one of the five senses.

Denoting both active and passive possibility and capability, -ble suffixation is extremely useful rhetorically. Thus, the morphosyntactic derivation of adjectives ending in -ble is highly productive, particularly for strings which have undergone Passive and Agent Deletion. As Strang (188-89) has commented, English words ending in -able, initially borrowed from French as full loan words, were later analyzed into roots and adjectival suffixes, allowing the -able suffix to be combined with native stems because of the usefulness of the rule:

. . . . English borrowed as whole words from French such composites as agreeable, comfortable, blamable, comparable. . .etc., and English speakers did not fail to infer that -able was a suffix which could be used to form adjectives from verbs and nouns (especially those verbs and nouns that were identical in form). They did not have a native suffix that did just this useful thing. And from the later 14c they begin to make their own formations. . . . the type comes to include phrasal verbs, either in the form with particle (get-at-able) or without. . . .

Passive -able adjectives are 'useful' precisely because they derive AA's and PA's from underlying verbs, allowing speakers and writers to impute characteristics to head nouns (particularly because of Agent Deletion). That speakers of Modern English create adjectives ending in -able which they analyze as passives with deleted agents was evident in a reply made by President Carter during his televised press

conference of July 25, 1979:

(20) That is expectable. . . to be expected.

Carter recast his sentence as a passive verb with a deleted agent, hesitating just long enough to reverse the transformational sequence by means of which he had originally derived expectable.

Although -able became one of the most active derivational suffixes during the Middle English period, other suffixes---ory (as in transitory), -ate (as in compassionate) and -ous (as in desirous), for instance--were borrowed in for the purpose of forming adjectives. By the 16th century, -ory, -ous and -ate were all productive, and native English suffixes (such as -less and -ful) not only continued to be active, but were also added to French stems.⁹ The use of borrowed suffixes added rules to the morphosyntactic conspiracies creating A-N and N-A targets, toward which the Passive, Progressive, RCR and MP transformations had aimed since Old English.

We are not certain when the distinction in meaning developed between AA's and PA's. It seems clear, however, that both A-N and N-A orders existed in Old and Middle English without consistently signalling differences in interpretation. In addition, the postnominal position of adjectival complements, relative clauses, and other nominal modifiers in Old thru Modern English suggests that adjectivals were and are postnominal in origin, though prenominal surface orders predominate for nonbranching adjectives. When and why postnominal position came to be assigned 'marked' interpretations such as that of impermanence remains a mystery. The normal VO order of Modern English and the existence of both N-A and A-N orders ought to have led, one would think, to the contrastive readings found in Modern French, in which prenominal position signals a 'marked' interpretation.

The rhetorical usefulness of having positions which denote contrastive meanings makes it unlikely that we will lose either of the two adjective positions; that of 'attribution' makes it equally unlikely that many of the rules conspiring to create adjectives will disappear. It is tempting to prophesy a reversal in the interpretations which speakers and hearers assign to nonbranching AA's and PA's rather than a shift to strict N-A word order; the former reanalysis would also be quite consistent with a VO language type. Yet even if we were prepared to describe the manner in which the reinterpretation of surface structures might occur, we would hesitate to predict it. Irregularities exist in natural languages, despite the attempts of linguists to rule them out of their grammars. Perhaps A-N word order is simply a persistent typological irregularity,

and the rule preposing only nonbranching adjectives to be interpreted as 'unmarked' just a 'crazy rule'.¹⁰

NOTES

¹Bolinger (1967:3-4) has analyzed postnominal adjectives as unambiguously 'occasion', but we believe that they have a variety of interpretations. See our discussion of (15)b.

²Haiman (1974:9) states that we can recognize a target when we can demonstrate that "independently motivated and formally unrelated rules in the grammar of a language. . . in a sense 'conspire' to produce some kind of favourite surface structure peculiar to that language." He notes that the term originated in Hoenigswald (1963), "where it is argued that diachronic rather than synchronic processes may be subordinated to a particular goal which may be so described." While we believe A-N and N-A surface structures to be the result of synchronic rule conspiracies which have developed historically, we differ from Haiman's contention that word order targets are unrelated to meaning (11). His position seems to be based on a belief that meaning is the product of semantic features and deep structures, and that notions of 'markedness' are inapplicable in syntactic analysis.

Space limitations prevent a fuller discussion of the many rules which conspire to derive adjectives. Lengthier treatments of Modern English transformational histories of adjectives are available in Vendler (1968) and Levi (1976).

³Only nonbranching adjectival VP's undergo MP; intensifiers such as very are not branches, while NP's and S's embedded in the VP are. Thus, NP does not apply to the output of RCR below:

- a. a frog charming to maidens
- b. *a charming to maidens frog

⁴See n. 1.

⁵Chomsky (1972) is an example of the lexicalist position.

⁶We have substantiated our analysis of agentless passives elsewhere; see, for instance, Stanley and Wolfe (Robbins) (1977); accounts such as that in Culicover (1976:170-71) differ markedly, arguing that agentless passives derive from underlying strings containing dummy NP subjects by means of a rule which obligatorily preposes objects, another which postposes agents, and a convention which rules out surface structures containing dummies.

⁷In the interest of simplicity, we have omitted many de-

tails, including performatives and other higher verbs.

⁸ It is beyond the scope of this paper to explain the range of agents recoverable from (17) and (18). See instead Stanley and Wolfe (Robbins) (1977).

⁹ Like -able/-ible, -less may signal either an active or a passive meaning, while -ous is correlated with -able but signals a contrastive (active) meaning. See Stanley (1972: 3-4).

¹⁰ We are not consigning MP to the 'crazy rule' category; a 'crazy rule' is an inexplicable exception to an otherwise coherent pattern. We believe there is a reason for the persistence of A-N order--and hence for MP--and that it concerns the surface structure interpretation assigned to prenominal modifiers. If we are correct, communicative and rhetorical factors figure highly in diachronic syntactic change, as well as in synchronic derivations.

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24.

AN HYPOTHESIS FOR OLD ENGLISH OBJECT NOUN CASE ALTERNATION

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The purpose of this paper is to present (1) some introductory remarks on grammatical case alternation in Old English, (2) a review of the literature and findings of other investigators of case alternation, (3) an hypothesis framed by a data-relevant model which will serve as a test instrument, and (4) a generalization regarding case alternation derived from the use of the model as a test instrument.

Old English poetic and prose texts, from the entire period, abound with sentences of apparently identical meaning, in which the objects associated with the same verb show either a three-case alternation of genitive, dative and accusative (1), or a two-case alternation between dative and accusative (2) -- including the impersonal constructions (3), between dative and genitive (4), and between accusative and genitive (5).

- (1) Se fæder wiðsoc his bearne [dative] 7 ðæt bearn wiðsoc þone fæder [accusative] 7 æt nextan ælc freond wiðsoc oðres [genitive]... Ælfric, Metrical Lives of Saints EETS i, 23,110
[The father denied his son, and the son denied the father, and finally, each friend denied the other...]
- (2) ðy læs [hi] ða halgan treow [accusative] þurh heora wop and tearas abulgen. Cockayne 32, 14
[lest they anger the holy tree through their weeping and tears.]

heo Gode [dative] abylgð... Laws of Ecg. (Thorpe) 188,4
[they anger God.]
- (3) him [dative] eft gehreoweð... Ælfred, CP, 214, 11
[it grieves him yet...]

hreaw hine [accusative] swiðe... Genesis A 1276
[it grieves him very much...]
- (4) Sigore [dative] gulpon. Genesis A 2017
[They boasted of victory.]

Hrepsigora [genitive] ne gealp. Beowulf 2583
[he didn't boast of glorious victories.]

- (5) He sceal his agnu yfelu [accusative] hreowsian. Ælfred, Pastoral Care 471,22
[He must repent his own sins.]

Heora synna [genitive] hreowsian and dædbote don. Orosius 6,2
[to repent their sins and do penance.]

In addition to sentences like the above there are others like (6), in which the object noun or pronoun associated with a particular verb is always in the same case, and like (7), in which the case is indeterminate.

- (6) We gesawon þæt he...gebearh cnihtum [dative only]...
Daniel 473
[We saw that he protected the youths...]

- (7) wealdon walstowe [case indeterminate]... Beowulf 2051
[[they] ruled the battlefield...]

There is confusion in current scholarship regarding the meaning, components, cause, and chronology of alternation. Most structural and traditional accounts either ignore it or deny that it exists. Those who refuse to acknowledge the existence of alternation make the assumption that each grammatical inflection represents a different meaning-function within the sentence, not realizing that meanings may be the same regardless of inflection. When alternation is recognized, it is thought to be a new development of Late Old English, and it is usually interpreted as mere form alternation, involving only the dative and accusative cases. No one has recognized that the genitive is also part of alternation. Malone (1936) and Klaeber (1950), following Malone, recognize alternation (not representative of meaning differences), but only in the personal pronouns him and hine and not dependent upon particular verbs. That they do not recognize that the alternation paradigm includes nouns is puzzling, for multiple examples occur in Beowulf, the text under discussion. Marchand (1951) claims that alternation is the result of a "shaky Dative idea," beginning in Late Old English, which developed into 'objective' in Middle English. Blakeley (1947), in a study limited to prepositional phrases showing dative/accusative alternation in the Lindisfarne Gospels, recognizes alternation as the syncretism of dative and accusative forms, both of which represent the original dative demanded by the governing preposition. Bright (1917), Bosworth-Toller (1947), and Cassidy and Ringler (1971) see the alternation as signalling a verb-meaning difference, e.g., (ge)læstan [with accusative object] 'to carry out', 'perform'; with dative object 'to follow', 'stick by', 'support' (Cassidy and Ringler 1971:443). This interpretation appears to be the result of trying to give Modern English glosses to words which either did not survive into Middle English or survived with restricted meanings only.

Visser (1970), in the most complete study of Old English verb/object-noun relationships, does not recognize the situation

as alternation but interprets each inflection as indicating a different relationship (1970:20, 281, 385-6). He attempts to classify these relationships according to object noun semantic roles (e.g., the indirect object is a person or thing in a kind of beneficiary relationship -- 1970:280) and according to verb semantic fields. The relationships, the object types, and the verb semantic fields can be seen in some of the examples he gives (those that occur with the object noun restricted to one grammatical case) but not in those examples where alternation occurs. My study shows that for those examples showing alternation no meaning difference is perceptible, e.g.,

- (8) God mæȝ hælpan allum [dative]... Bodley Homilies EETS 24,
24; Beowulf 2340
[God can help all...]
- (9) Godes mildheortnes helpð ælcne [accusative]... Bodley
Homilies EETS 52, 22
[God's mercy helps each...]
- (10) God ure [genitive] helpe... Bodley Homilies EETS 24, 27;
Crist 1499
[God should help us...]

It is possible that there was a very subtle meaning difference indicated by each inflection and that alternations did not indicate confusion as to which form represented the meaning. However, Visser does not substantiate his claim of difference; he simply states that there are differences and gives paraphrases to show the supposed differences. Although Visser professes to group his examples according to object type and verb semantic field, he actually organizes the data according to grammatical form and verb semantic fields that show much overlapping. His discussion of the data is based on the actual form, upon which he superimposes the postulated relationships and object types. He does not observe the multiple instances where the postulated relationships, object types, and verb semantic fields do not exist. It is interesting to note that if each inflection indicated a separate meaning in Old English, these meanings should extend into Middle English. They do not because they did not exist. They are artifacts of Visser's analysis.

Pope (1968) presents an interpretation of alternation that is unique in that it has limited application. It is restricted to sentences with human subjects and human objects and the associated social class relationships existing between the subject and object nouns: if the object noun is inferior in rank to the subject noun, the inflection is dative; if superior, the inflection is accusative; and if both are of equal rank, the case is genitive. No evidence exists in Old English to support this analysis.

As stated earlier, the major purpose of this paper is to alleviate the present confusion about case alternation in Old English. This will be accomplished by combining a testable hypothesis with a data-derived model (Figure 1) in which there are two

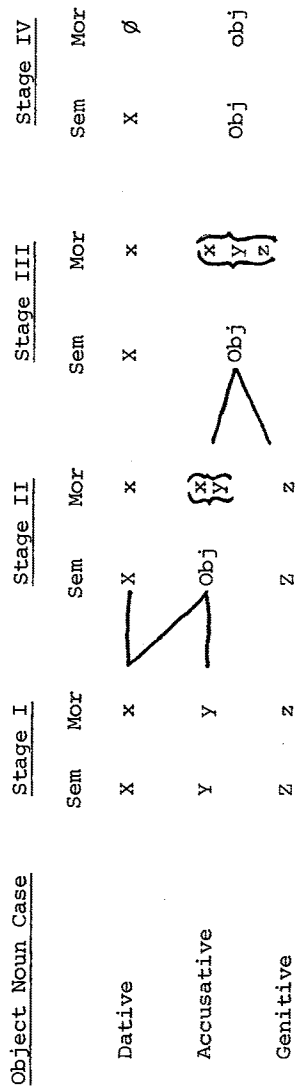


Figure 1: A Model of the Hypothesis

factors for each object noun in each stage: the semantic (the meaning[s] represented by each case inflection) and the morphologic (the surface mechanism for semantic realization). The model is divided into four stages, which define the semantic and morphologic changes within each stage. The fuller explanation is as follows:

Stage I (Proto Old English):

Semantic: base meanings

Morphologic: base forms

Each surface inflection represents a distinct meaning.

Stage II (Early Old English, prior to text composition):

Semantic: neutralization of contrast between some of the meanings of the dative (X) and the meanings of the accusative (Y), with the development of archisememe (Objective); genitive meanings (Z) maintained; other dative meanings maintained

Morphologic: base forms maintained with morphologic competition between dative and accusative forms only, to represent the objective archisememe

The loss of semantic distinction between accusative meanings and some dative meanings (neutralization) is shown in the early interchange of the personal pronouns me, us, and him (dative forms) mec, usic, and hine (accusative forms) in Crist, Beowulf, Genesis A and other early texts.

Stage III (Old English through Late Old English, original texts and copies of the earlier texts):

Semantic: neutralization of contrast between Stage II Objective and genitive meanings (Z); 'Objective' now only underlying sememe; dative (X) meanings maintained

Morphologic: base forms maintained; morphologic competition among dative, accusative and genitive inflections to represent 'Objective'

In this stage the genitive inflection is recognized as pertinent only when modifying a noun (possessive, descriptive, partitive). When used on the object noun, it is competing with the dative and accusative inflections to represent the same sememe because there is no longer meaning contrast. Any one of the three case forms could have replaced the other two. However, the dative has proved to be the Post Old English unmarked form (modern usage of him, us, and me as the objective forms).

Stage IV (Post Old English):

Semantic: modern form

Morphologic: realization of archimorpheme (objective)

The genitive inflection survives only as a noun-modifying inflec-

tion (possessive, et. al.). The object noun in the genitive case does not occur in Middle English except possibly in a few isolated cases, (although the ending most probably indicates plurality rather than genitive). For the few verbs surviving into Middle English that required in Old English the object noun to be in the genitive, the case is either indeterminate or the form is in a prepositional phrase.

- (11) His felaw that was so ny to herken of his sawe. Chaucer
Canterbury Tales A 1525
 [His fellow who was close enough to hear his saw.]

Utilization of Model as Test Instrument:

There are 285 verbs involved in the alternation. 120 of them (42%) show dative-accusative alternation only; 89 (31%) show accusative/genitive alternation only; 24 (8%) show dative/genitive alternation only; and 52 (18%) show accusative/dative/genitive alternation. The stated quantitative data tend to support the developmental stages of the model and its role as a test instrument. This support permits the generalization that morphologic competition follows semantic change, with the only contrast being between subject noun and object noun, not among object nouns. Further support comes from those sentences in which the object noun's grammatical case is indeterminate: the only contrast possible in these sentences is between subject and object. Morphologic competition occurred either because the speakers did not know which form to use to represent the semantic 'objective' or because all three forms were acceptable as representing the 'objective'. This study differs from the others in that it claims that alternation (morphologic competition) results from underlying semantic change, not inflectional system change, and in that it places the beginning of the semantic change in Proto Old English instead of placing the time frame in Early Middle English or between Late Old English and Early Middle English. A further possibility exists that the phenomenon may actually have begun during Common Germanic, as evidence exists in Old Saxon, Old Norse, and Gothic of dative/accusative alternation. Thus, Stage I of the model might have occurred in Common Germanic and Stage II in Proto Old English. Stages III and IV maintain the same time frame. No evidence is found in Gothic of the genitive form in alternation with the dative and accusative forms; samplings of Old Norse and Old Saxon texts (to be completed later) reveal the same exclusion of the genitive form in alternation. If the inclusion of the genitive form in the alternation paradigm proves to be limited to Old English, it could well be the result of creolization of the Old English dialects (perhaps even influenced by Celtic and possibly Pictish speakers imperfectly learning the language of the conquerors, for not all fled or were slain).

In closing, I would like to mention that the semantic 'objective' of Stages II, III and IV of the model may be all that the speakers/hearers of Old English perceived (the contrast being between the subject and object of the sentence) and not specific

semantic roles for the object noun associated with verb semantic fields, any more than Modern English speakers/hearers perceive semantic roles in association with verb semantic fields, so that Old English

- (12) he welt ealla gesceafta [genitive]
 ealle gesceaftu [accusative]
 eallum gesceaftum [dative]
 [he rules all creatures]

and in Modern English

- (13) John built the house
 (14) John kissed Mary
 (15) He ruled all creatures

and so on, the object nouns were and are perceived as the objects of the act specified by the verb meaning and very possibly nothing more.

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GRAMMATICAL RELATIONS AND CASE IN MODERN GEORGIAN

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Introduction. The case system of Georgian, a Caucasian language of the Soviet Union, consists of six forms -- the ergative, nominative, dative, genitive, instrumental and adverbial. Of these, the first three can be used to express the subject of the sentence while both the nominative and the dative can also denote the direct object. As the following table shows, the conjugational class and aspectual series of the verb determine which case form will be used to express a given grammatical relation.

Aspectual series	1st Conj. ('trans.')			2nd Conj. (synthetic pass.)		
	pres.	aor.	result.	pres.	aor.	result.
subj.	nom.	erg.	dat.	nom.	nom.	nom.
dir. obj.	dat.	nom.	nom.	---	---	---
ind. obj.	dat.	dat.	---	dat.	dat.	dat.

Aspectual series	3rd Conj. ('middle')			4th Conj. ('indirect')		
	pres.	aor.	result.	pres.	aor.	result.
subj.	nom.	erg.	dat.	dat.	dat.	dat.
dir. obj.	(dat.)	(nom.)	(nom.)	nom.	nom.	nom.
ind. obj.	dat.	dat.	dat.	---	---	---

There is some controversy over the status of the so-called 'dative subjects' of the 4th conjugation and of the resultative series in the 1st and 3rd conjugations. Some researchers have refused to admit that the dative case can ever denote the subject relation and have noted that the verb markers which co-occur with Georgian's hypothetical dative subjects are used elsewhere in the language only in conjunction with objects. However, others have pointed out that dative subjects, like their nominative and ergative counterparts, can trigger number agreement in the verb in the 3rd person and often denote the logical subject (i.e. the agent) of the sentence. For example:

- (1) a. Vaxtang cxens daqargavs
 V. (nom) horse (dat) lose (pres)
 V. will lose his horse.

- b. Vaxtangma cxeni daḡarga
 V. (erg) horse (nom) lose (aor)
 V. lost his horse.
- c. Vaxtangs cxeni dauḡargavs
 V. (dat) horse (nom) lose (result)
 V. has (probably) lost his horse.

For a brief review of the controversy surrounding dative subjects, see Chanidzé (1963) and Aronson (1970).

For the purposes of this paper, I will assume that Georgian does in fact have dative subjects, and I will attempt to show that it is possible to account in a principled way for this use of the dative case as well as for the distribution of the other forms in the Georgian case system.

In its strongest form, the claim that there exists a unified account of the Georgian case system (as represented in the table above) entails that there is a theory of case which can assign to each case form a single underlying value capable of accounting for the entire distribution of that form (with the possible exception of archaic and colloquial uses). At a more general level, it would also be desirable for such a theory to be capable of demonstrating that the Georgian case system -- with its many peculiarities -- can be related to the same category of case that manifests itself, in different ways, in Russian, Latin, Eskimo and so on.

The general theory of case which I would like to sketch here (and which has been developed in some detail in O'Grady [to appear]) is based on the claim that the category of case expresses a core set of predication relationships and that the case systems of individual languages reflect the interaction of these 'core' relations with the rest of the grammar.

A predication relationship exists between two words when one of the words predicates the other. I assume that a word x predicates a word y if the lexical content of x is said of the lexical content of y. Hence, in a phrase like red house, red predicates house. Predication is the most basic of all linguistic mechanisms in that it directly reflects the speaker's ability to create a meaningful message by concatenating the meanings of the various words of a sentence. Given the extremely basic nature of predication relationships, it should not be surprising to discover that they play a key role in the functioning of an important morphosyntactic system like case. In fact, it would be quite surprising to discover that a phenomenon as common as case was entirely unrelated to the basic predication mechanisms of language.

Within the theory of predication being outlined here, variants of which have been advanced by Jespersen (1965:96ff), Guillaume (1973:203) and Whitney (1898:6), grammatical relations can be defined in terms of predication relationships between a verb and a noun. Subjects and direct objects are nouns which are directly predicated by a verb in that the predication relationship between

verb and noun is not contingent upon the realization of any other predication link. Thus, it is not difficult to find structures in which the predication link associated with a subject or a direct object is the only such relationship in the sentence. Consider, for example, sentences like Max slipped (in which it is said of the referent of the subject, Max, that he slipped) and Stop the car (in which it is said of the referent of the object, the car, that it should be stopped). An indirect object, on the other hand, is indirectly predicated by the verb in that the existence of the predication relationship is contingent upon the realization of a predication link between the verb and its direct object. Thus, in a sentence like Harry sent Max a letter, it is said of Max, not that he was sent (in which case there would be a direct predication relationship), but that he was sent a letter.

The predication relationships associated with subjects and objects are characterized by the fact that the noun is predicated by another word (a verb) and thus functions as a 'primary' (to use Jespersen's term). Besides being predicated by verbs, nouns can also predicate other nouns (e.g. John's in John's car) and sometimes can even predicate verbs (e.g. 3 miles in Walk 3 miles). A noun which predicates another noun is called a 'secondary', while a noun which predicates a verb is termed a 'tertiary'.

Reviewing briefly, I am claiming that communication through language requires that the meaning of certain words be used to provide information about the referents of other words and that the resulting predication relationships are expressed with the help of case forms in many languages. Thus, it would not be surprising to find a case system in which nouns which function as primaries appear in an absolutive case, while nouns which function as secondaries occur in the genitive and nouns which serve as tertiaries are found in an adverbial case. In general, however, case systems reflect an interaction between predication relationships and other linguistic categories. In Latin, for example, the nominative is used not just for nouns which are directly predicated by the verb (i.e. primaries), but only for nouns which are also subject. The Latin case system can therefore be said to reflect an interaction between the set of predication relations and subjecthood.

Case in Georgian. I will argue that the Georgian case system reflects an interaction -- somewhat more complex than in Latin -- involving nominal primaries, direct and indirect predication, transitivity and aspect. In particular, I will be arguing that whereas the ergative, nominative and dative all denote primaries, the ergative and nominative are the cases of direct predication in Georgian while the dative is used to represent an indirect predication relation. The distinction between the ergative and the nominative will be based on the fact that the ergative is used to denote the subject of a transitive perfective verb while the nominative is used for all other nouns directly predicated by

the verb.

Following O'Grady (1978:57ff), I will assume that subjecthood involves a special relationship between the referent of a noun and the development or 'actualization' of the event denoted by a finite verb. In English, the referent of the subject noun functions as actualizer in that it enters into a 'do-relation' with the verb. Consider:

- (2) Harry suffered a great deal during Jane's absence.
- (3) Sam left before the fight.
- (4) Max debated the issue with his opponents.

Despite obvious differences in the semantic relations which the sentence-initial nouns bear to their verbs, the referent of each can be said to be actualizer in the sense outlined above. Thus, in (2) it is Harry who did the suffering; in (3) it is Sam who did the leaving; and so on. I will tentatively assume that subjecthood in Georgian is also definable in terms of actualization (but see footnote 4).

Ergative languages divide the set of nouns which are directly predicated by the verb into two classes -- those that serve as actualizers (subjects) of events that are predicated of some other entity and those that do not serve in such a capacity. Thus, when the verb predicates a second noun (i.e. when there is a direct object), the ergative is the case of the subject. When, on the other hand, the verb is intransitive (i.e. predicates only the subject), the absolutive is employed as it is when the noun, due to its role as direct object, is also not actualizer of an event involving a second party.

In Georgian, the situation is more complex in that the ergative is used to express an interaction involving not only predication, subjecthood and transitivity, but aspect as well. Since the Georgian ergative denotes the subject of transitive verbs in the aorist series (corresponding to the perfective or punctual aspect [Vogt 1971:87]), it would seem that this case form is being used to distinguish the noun which functions as actualizer of the entire event expressed by a transitive verb² from nouns which serve as actualizer of only part of the event (i.e. subjects of verbs in the imperfective first series) and from nouns which do not serve as actualizers at all (i.e. objects).

The functional range of the nominative seems to complement that of the ergative in that it is used to denote nouns which are directly predicated by the verb (subjects and direct objects) but whose referents are not responsible for the entirety of the event's actualization. There are at least two ways in which these properties can manifest themselves. First, the referent of the inflected noun can serve as actualizer of only part of the event expressed by the verb, as when the nominative is used to denote the subject of the imperfective aspectual series in the first three conjugations. Because the imperfective aspect evokes the image of an incomplete event, the subject cannot denote the actualizer of the

entire event and the nominative, rather than the ergative, is hence appropriate even when the verb is transitive.

The second manifestation of the nominative case which is consistent with our characterization of its basic value corresponds to its use to denote most direct objects as well as the subject of both synthetic (second conjugation)³ and periphrastic passives (Lafon 1963:29). Since none of these grammatical terms denotes an entity which is even partly responsible for the event's actualization, this function of the nominative also conforms to our characterization of its basic value.

Thus far, I have argued that both the ergative and the nominative denote a noun which is directly predicated by the verb and that the distinction between the two forms is based on the extent to which the referent of the inflected noun is involved in the event's actualization. Since the dative case is used to denote the indirect object in Georgian, it -- unlike the ergative and nominative -- would seem to signal the presence of an indirect predication relationship. (Remember that the indirect object corresponds to a noun which is indirectly predicated by the verb.) Still to be determined is how the case of indirect predication can be used to denote subjects (as in the resultative series and the 4th conjugation) and direct objects (as in the present series). It is my hypothesis that the Georgian dative case can be used to express a grammatical relation normally associated with direct predication only when this relation is highly marked in nature.

As outlined earlier, Georgian grammar makes use of the ergative and nominative cases to distinguish between subjects that are actualizers of the entire event expressed by the verb and those that are not. It is of interest to note that the dative is used as the case of the direct object always and only when the nominative is used as the case of the subject -- i.e., when the verb is imperfective. This suggests that Georgian may distinguish between direct objects which are seen as 'undergoing' the entire action expressed by the verb and those that are not. This distinction, parallel to the one described for the subject relation, would entail a contrast between direct objects of verbs in the aorist (perfective) and resultative series (where an image of the entire event is evoked) and direct objects of verbs in the present (imperfective) series (where only part of the event is represented). Assuming the correctness of this line of inquiry, it seems plausible to suggest that the Georgian dative case can be used to indicate that just as the imperfective aspect represents an event as incomplete, so the relationship between an imperfective verb and its direct object must also be seen as incomplete.

It is easy to find examples of comparable uses of case forms in other languages. In Russian, for example, the genitive (rather than accusative) case is generally used to denote the direct object of a negated verb. It seems reasonable to argue that the function of the genitive here is to aid in nullifying the predication relation between the verb and its direct object by

assigning the noun to a word type (a secondary) which cannot normally be predicated by a verb. The genitive is also used in Russian and in Old English to denote the unusual predication relationship underlying partitive direct objects -- a relationship which is apparently characterized by the fact that only part of the extension of the direct object's referent falls within the predication scope of the verb.

Turning now to the so-called 'dative subjects' of Georgian, it seems that the case of indirect predication is once again used to denote a specific type of highly marked grammatical relation. The marked nature of this relation stems from the fact that, unlike most verbs, members of the 'indirect' conjugation represent events over whose actualization the subject can never have direct control. Included in this conjugational class are verbs expressing emotions like love, pleasure and disgust; feelings like cold, hunger and pain; desires and needs; and other states which are beyond an individual's control like sleep and consciousness. For example:

- (5) Bavšvs uq'vars
child [dat.] loves him
- (6) Bavšvs sdzinavs
child [dat.] sleeps
- (7) Bavšvs hšia
child [dat.] is hungry
- (8) Peṭres saxli akvs
Peter [dat.] house [nom.] has
Peter has a house.
- (9) Vanos durgloba daavičqdeba
Johnny [dat.] carpentry [nom.] forget
Johnny [dat.] will forget the carpentry.

Subtle alternations involving 4th conjugation (indirect) and 1st conjugation (transitive) forms suggest that the former conjugation (with its dative subject) is used to indicate that the subject is not involved in the event's actualization even though the verb is in the active voice. As Chanidzé's (1963:20) glosses for the minimal pair in (10) indicate, the dative subject of verbs in the indirect conjugation is not represented as actualizer of the event expressed by the verb, and the resulting structure is frequently called 'impersonal' (Chanidzé *ibid.*:18).

- (10) a. Bavšvs sdzinavs
child [dat.] sleeps
To the child is the state of sleep.
- b. Bavšvi idzinebs
child [erg.] sleeps
The child goes to sleep.

The resultative aspectual series of the first three conjugations seems to resemble the indirect conjugation in that the

actualizational relationship which characterizes its subject departs somewhat from the norm. Consider:

- (11) Vanos cxeni mouqvania
 Johnny [dat.] horse [nom.] bring
 Johnny (probably) brought the horse.
- (12) Mas dauqeria qerili
 He [dat.] write the letter [nom.]
 He must have written the letter.

Lafon (1963:30) notes that French translations of these forms usually include expressions like 'so it seems' or 'probably' to capture the nuance of doubt associated with the Georgian resultative. Lafon points out that use of the resultative construction implies that the speaker did not actually witness the event he is describing, but that he knows it must have happened because he has been told so by someone else or can see its results. It is apparently the case, then, that although the resultative series includes verbs whose actualization can in theory be attributed to a specific entity, these forms are used when it is not possible to unequivocally attribute the event's actualization to the referent of the subject. The dative subjects of verbs in the resultative aspectual series and the 4th conjugation are therefore alike, for in neither instance does the referent of the subject bear the usual actualizational relationship to the event denoted by the verb.⁴

It would seem, then, that Georgian can make use of a case form associated with indirect predication to indicate that certain subjects do not enter into the usual relationship with the event denoted by their verbs. Here again, it is important to emphasize that this practice is not restricted to Georgian, and that a somewhat comparable phenomenon occurs in languages like Icelandic (Einarson 1949:143) where certain passive structures take genitive and dative subjects, apparently to indicate that the subject is not actualizer.

To review, I have argued that case systems reflect an interaction between a basic set of predication relations and various other linguistic systems. The Georgian ergative and nominative cases both express a direct predication relationship and are distinguished on the basis of an interaction with the aspectual system. Of the nouns directly predicated by the verb, the ergative is used only for those whose referent is actualizer of the entire event expressed by a transitive verb, while the nominative is used for all others. The dative case expresses an indirect predication relationship and is used not only to denote the indirect object, but also to express certain direct predication links which underlie grammatical relations with highly marked or unusual properties.

The theory of case outlined here constitutes a radical departure from earlier accounts in that it bypasses syntactic and semantic concepts in favor of a framework built around a categorization of predication relationships. The resulting model is an

attractive one in that it has the potential to account for a set of extremely complex phenomena in terms of the interaction of a small number of relatively simple systems. The fact that most languages of the world exhibit some nominal inflection for case and that literally millions of children master these systems every year certainly suggests that the theory of case will have to draw upon concepts of hitherto unsuspected elegance if it is to provide a satisfactory account of this aspect of human linguistic competence.

NOTES

¹Predicational structure seems to play a much more prominent role in language than hitherto suspected. For a reanalysis of a variety of syntactic phenomena in terms of predicational structure, see O'Grady (1978).

²In actual fact, the concept of transitivity may be less critical in Georgian than are aspectual considerations since the ergative is also used for the subject of middle (intransitive) verbs in the perfective series (Aronson 1970:296):

- (i) Man icxovra
He [erg.] lived.

³The Georgian synthetic passive (the 2nd conjugation) seems to resemble the Latin deponent in that the subject often does not appear to be entirely inactive in the event's actualization. However, as long as the subject is not in complete control of the event's actualization, the use of the nominative case can be explained within our framework. For a discussion of subjecthood in relation to the Latin deponent, see Guillaume (1969:128ff).

⁴It would seem, then, that our tentative definition of subjecthood needs to be revised somewhat in that the referent of the Georgian subject is not invariably actualizer. A more adequate hypothesis would be that the subject in Georgian corresponds to the noun which is categorized in terms of its role in the actualization of the event denoted by the verb. Subject-verb agreement in the 3rd person signals which noun is to undergo this categorization.

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SUBJECT IN YUP'IK (ESKIMO)¹

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0. Introduction. Recent work by Schachter (1976 and 1977) and Foley and VanValin (1977) has revealed an interesting binary division of properties commonly associated with subjects between two categories of nominal clause elements in various languages of the world. These properties have been termed "reference-related" and "role-related" subject properties. In languages such as English where the identification of the subject is supposedly unambiguous, both reference-related and role-related subject properties are possessed by the same clause element. In other languages, notably Philippine languages, role- and reference-related subject properties are possessed by different clause elements. This finding leads Schachter and Foley and VanValin to assert that subject is not a universal linguistic category, but that in fact there are two categories which are often, but not necessarily, co-extensive.

Yup'ik Eskimo, and perhaps ergative languages in general, provides additional evidence for these two significant categories of clause structure often subsumed under the label "subject." In this paper I will show that Yup'ik, like Philippine languages, also displays a distribution of reference-related and role-related subject properties between two categories of nominal clause elements. Thus it will be seen that a typological similarity exists between languages of the Philippine type and Yup'ik. This finding will shed light on such important linguistic issues as the definition of "subject" as a universal notion and of the existence of "ergative" languages.

1. Yup'ik Clause Structure. In this paper I will primarily be discussing Yup'ik intransitive and transitive clauses. Intransitive clauses are those which contain a one-place predicate, i.e. a verb and a single argument.

- 1) Pam -aq mayu -llru -u -q
abs climb past intrns 3sg
"Pam climbed up."

Transitive clauses are those which contain a two-place predicate and which typically involve an agent and a patient as arguments.

- 2) Tom -am Doris -aq cinga -llru -a
erg abs kiss past 3sg/3sg
"Tom kissed Doris."

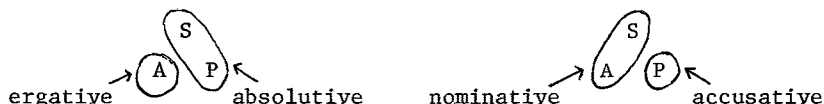
I will also be mentioning antipassive clauses. These are distinguished morphologically, syntactically and semantically from true transitive clauses.

- 3) Yero -q kemer -meng nere -llru -u -q
 abs meat abl/mod eat past intrns 3sg
 "Yero ate meat."

Morphologically, the arguments of an antipassive clause are in different surface cases than their counterparts in a true transitive clause; the first argument is in the absolutive case, and the second is in the "ablative-modalis" case (Reed, et al., 1977). Also, the verb is formally marked as intransitive. Syntactically, the second argument is an "oblique" in that it does not participate in syntactic processes such as verb agreement. Semantically, second arguments of antipassives are obligatorily indefinite, generic and/or partitive.

Following Comrie (1978), I will use the symbol S, which is reminiscent of Subject, to refer to the single argument of an intransitive verb, i.e. Pamaq in example (1). A, which is reminiscent of Agent, will refer to the argument of a transitive verb that would be the subject in a non-ergative language, i.e. Tomam in example (2). P, which is reminiscent of Patient, will refer to the argument of a transitive clause that would be the direct object in a non-ergative language, i.e. Dorisaq in example (2). Though S, A and P are clearly mnemonics, they are meant only as labels which could just as easily have been represented as X, Y and Z.

As can be seen from the above examples, for purposes of case marking, Yup'ik treats S and P as a unitary category, absolutive, as against A, ergative. This pattern of case marking in basic clauses defines Yup'ik as an "ergative" language. In general, any grouping of S with P as against A can be termed an "absolutive ergative" system. Non-ergative languages, such as English, treat S and A as a unitary category as against P in basic clauses for those nouns which distinguish case, namely pronouns. In general, any grouping of S with A as against P can be termed a "nominative/accusative" system. The following two diagrams illustrate absolutive/ergative and nominative/accusative systems.



The nominative/accusative system of English, however, is not limited to noun phrase morphology. Verb phrase morphology also operates on such a system in that verbs in English agree with S and A but not P. Furthermore, the nominative/accusative system is manifested in other areas of English syntax. For example, "complement subject omission" (Payne, 1979) in English applies to both the S of intransitive complements (example 4) and the

A of transitive complements (example 5).

4) John wants to write.

5) John wants to kiss Mary.

The P cannot be omitted by this rule, i.e. one cannot say

6) John wants Mary to kiss

hoping to mean "John_i wants Mary to kiss him_i." Here is a non-morphological manifestation of a nominative/accusative system for grouping S, A and P.

Any analysis of Yup'ik as an ergative language depends upon an understanding of the antipassive construction as less basic than the corresponding transitive construction. We would not say that, e.g., English is ergative because passive constructions code P of transitive clauses in a position analogous to S of intransitive clauses.

7) $\frac{\text{He}}{\text{P}}$ was kissed by $\frac{\text{Mary}}{\text{A}}$. 8) $\frac{\text{He}}{\text{S}}$ coughed.

Here S and P both require nominative case pronouns and both occur in subject position. However, this is not a true manifestation of ergativity because the passive is clearly a "marked" construction type in English. Regardless of whether or not one holds the position that passives are derived from actives in English, there are certain criteria by which it can be determined that passives are "less basic" than active constructions. Some of these criteria are: more limited distribution in discourse, and late acquisition. Similarly, the antipassive in Yup'ik is less basic than the transitive ergative construction, by the same criteria. Thus the characterization of a language as "ergative" on morphological grounds must make reference to the relative markedness of constructions manifesting various "voice" distinctions.

A recent study by R. Cena (1978) has shown that in Tagalog (the Philippine language discussed most extensively by Schachter and Foley and VanValin) "Patient-Topic" are more basic by the same kinds of criteria mentioned above than "Actor-Topic" constructions. Since in patient-topic constructions the P (Patient) is preceded by the "topic marker," ang, and in basic intransitive constructions the S is also marked by ang, it can be said that Tagalog is morphologically ergative for exactly the same reasons as is Yup'ik. The fact (if Cena's analysis is correct) that transitive actor-topic constructions are less basic than patient-topic constructions confirms this observation. Transitive actor-topic constructions are, then, analogous to antipassives in terms of markedness and voice. I have shown elsewhere (Payne, 1979) that actor-topic constructions in Tagalog are also functionally analogous to antipassives in Yup'ik. Thus it is understandable that the unusual characteristics of Philippine clause structure

observed by Schachter and Foley and VanValin should be evident in Yup'ik as well. In the following sections I will document some of the characteristics of Yup'ik clause structure which are analogous to those of Philippine languages, and will suggest how these characteristics are explainable under an analysis which distinguishes two categories of clause structure often subsumed under the label "subject." These categories are the "referentially prominent" nominal and the "role prominent" nominal.

2. Subject Properties. Since intransitive clauses have only one nuclear argument, there is no question of the identity of the subject in any intransitive clause. All members of the set (S), then, are cardinal subjects. That is, all properties which hold for the set (S) are subject properties. A and P, then, can be discussed in terms of the properties they share with S. In English A shares the property of "requiring nominative case pronouns" with S. Thus if one's definition of subject involves case marking then A is defined as the subject in transitive clauses. However, in ergative languages P shares the property of "absolutive case marking" with S. Thus a definition of subject based on case marking would define the P of a transitive clause in an ergative language as the subject.

Anderson (1976), however, argues that surface morphology does not necessarily reflect significant categories of clause structure. Rather, other tests which reveal the syntactic behavior of clause constituents must be employed to determine significant categories. Anderson argues that in by far the largest number of cases, languages which are morphologically ergative display the same kind of syntax one would expect of languages in which nominative and accusative were the significant categories of nominal elements in clause structure. He cites as examples constructions of the complement subject omission (Equi-NP deletion) type, and others, in ergative languages and shows that these languages treat S and A as a unitary category as against P in syntactic processes. Anderson thereby argues that a definition of subject for most ergative languages must be the same as that for non-ergative languages. Ergative case marking is, for Anderson, a rather trivial and "low level" phenomenon.

I would like to show that in Yup'ik certain constructions, including complement subject omission, do refer to S and A as a unitary category, but that other constructions, specifically nominalization, refer to S and P as a unitary category thus manifesting an absolutive/ergative system in the syntax as well as in the morphology. I will argue that the constructions manifesting a nominative/accusative system are those which are sensitive to the role-related properties of subjects. Thus S and A form a significant category of clause structure which is "role-prominent", i.e. possesses all the role-related subject properties. I will also argue that the constructions manifesting an absolutive/ergative system are those which are sensitive to the reference-related properties of subjects. Thus S and P form a significant category of clause structure which is "referentially-prominent,"

i.e. possesses all the reference-related subject properties.

2.1 Referential Prominence. Absolutive noun phrases in Yup'ik are obligatorily definite and referential in that the intended referent of any noun phrase marked as absolutive is assumed by the speaker to be uniquely identifiable by the hearer. Thus Yup'ik absolutes can always be translated as English definite noun phrases, either common nouns preceded by the or proper nouns. Nominals other than absolutes in any Yup'ik clause may be definite and referential, but such definiteness and referentiality cannot be attributed to their being in any particular surface case. Rather, such nominals are inherently definite and referential (Foley, 1976), e.g. proper nouns. Since the surface case absolutive is the only case which guarantees referentiality and definiteness, it can be said that absolutive NPs are "referentially prominent." Much the same reasoning is used by Schachter (1977:282) to show that the surface category "topic" in Philippine languages is referentially prominent. Foley and VanValin (1977) also characterize the Philippine topic as referentially prominent. Ergative case marking, then, involves more than an arbitrary selection of which NP in a transitive clause to put into the same surface case as the single NP in an intransitive clause, as Anderson's hypothesis could lead one to believe. Rather, ergative case marking in Yup'ik implies that S and P share the subject property of referential prominence.

2.2 Nominalization. Morphological nominalization is extremely common in Yup'ik, being used to express what would be translated into English as clausal complements, relative clauses, participles, and other constructions. Among those nominalizing strategies that might be translated as relative clauses, some refer to S and P, some refer to S and others refer to P. However, my investigation to date has revealed no strategies which refer to S and A, or to A alone. For example, the suffix -lleg forms a nominalization of either a transitive or an intransitive verb. When -lleg is used with non-possessive endings, the verb is interpreted as intransitive and the resulting noun refers to the S of that verb. For example:

- 9) Pai -lleg
 baby-sit -LLEQ-abs
 "The one who babysat."

When used with a possessive ending, the verb is interpreted as transitive and the resulting noun refers to the P of the verb. The grammatical possessor is interpreted as the A.²

- 10) Pai -llr -a
 baby-sit -LLEQ 3sg-poss
 "The one he/she babysat."

The nominalizer -lleg, then, refers to S and P as a unitary category as against A, thus showing that S and P share the subject

property of nominalizability.

Both Schachter (1976 and 1977) and Foley and VanValin (1977) treat the property relativizability as a reference-related property in that relative clauses delimit the reference of NPs. In that -LLEQ nominalization is functionally equivalent to relativization, nominalizability can also be considered a reference-related property. Thus another reference-related property of subjects is shared by S and P, but not A.

2.3 Role Prominence. In describing any event, a speaker must choose a "perspective" (Fillmore, 1977) from which to view that event. Which verb to use to describe a particular event is at least in part determined by which participant or participants the speaker wishes to include within his or her perspective; a verb whose case frame selects the appropriate participants as arguments is used to convey the perspective the speaker desires. In an intransitive clause, the S, being the only nuclear nominal, indicates the participant in perspective. In a transitive clause the A and P are in perspective, with the A in what I will call "primary perspective." This participant in primary perspective has prominence within the clause because of its role as central participant (from the perspective of the speaker) in the event. This notion of role is not to be confused with semantic roles such as AGENT, if AGENT is to be interpreted as the "typically animate perceived instigator of the action" (Fillmore, 1968:24). A and S in Yup'ik do not necessarily code semantic AGENTS, as evidenced from the following examples:

- 11) amik patu ←llru ←u ←q
 door-abs close past intrns 3sg
 "The door closed."
- 12) Tomam Dorisaq tange ←llru ←a
 erg abs see past 3sg/3sg
 "Tom saw Doris."

In Schachter's characterization, the choice of "Actors" (i.e. participants in primary perspective) in Philippine languages is dependent not so much on the objective role that a participant plays in an event, but rather on which participant holds the most interest or importance for the speaker (Schachter, 1977:283). Several syntactic characteristics of Actors in Philippine languages are described by Schachter and Foley and VanValin as following from their role-prominence within the clause. One of these characteristics is susceptibility to complement subject omission.

In Yup'ik, the constructions analogous to those undergoing complement subject omission are those involving a class of non-finite verbs which I will call -LU verbs, as they are defined by the occurrence of the suffix -lu. In such constructions, the omitted A or S of the non-finite -LU complement can only be interpreted as being coreferential with the S or A of the main clause. For example:

- 13) Randy-q aya -llru -u -q irnia -ni cingar -lu -ki.
 abs leave past intrns 3sg child poss kiss LU 3pl
 "Randy left kissing his children."

- 14) Randy-q aya -llru -u -q aturturr' -lu -ni.
 abs leave past intrns 3sg sing LU 3sg
 "Randy left singing."

The P of a transitive -LU complement cannot be omitted in such constructions:

- 15) *Randy-q ayallruuq Judy-m cingarluku.
 abs left-3sg erg kiss-LU-3sg
 "Randy left Judy kissing him."

Thus it can be seen that this type of infinitival complement subject omission applies to S and A as a unitary category, but not to P. This shared characteristic of S and A follows logically from their status of role-prominence in their respective clauses. -LU complements express events which are perceived as part of the event expressed in the main clause, hence they can regularly be glossed as English present participles. It is understandable, then, that events which are so integrally related as to be perceived as one complex event would share a central participant. One might expect that events revolving around different central participants would be expressed in more independent verb forms.

3. Conclusion. It has been shown that in Yup'ik Eskimo the properties of cardinal subjects (S) of intransitive clauses are divided between the two arguments of transitive clauses (A and P). Furthermore, this division of subject properties is parallel to that in Philippine languages between role-related and reference-related properties. The P of a transitive clause possesses all those properties of S which can be termed reference-related, while the A possesses all those properties of S which can be termed role-related. Thus no single category of nominal clause element in transitive and intransitive clauses can be labeled "subject." Rather, it is clear that there are two significant categories of clause structure which happen to converge on a single category in non-ergative languages, like English, whereas in ergative languages (at least Yup'ik and languages of the Philippine type), these two categories are kept quite distinct. This finding, as pointed out by Schachter and Foley and VanValin, has vast implications for linguistic theories which hope to formulate generalizations in terms of relational notions such as subject and object. To the extent that true generalizations can be stated in terms of either of the two categories "role-prominent nominal" and "referentially prominent nominal," these two categories must be recognized in a formulation of universal grammar.

FOOTNOTES

1. Special thanks to Joan Hamilton of Naparyaq (Hooper Bay), Alaska, who graciously provided all of the Yup'ik material cited in this paper from her home dialect of Central Yup'ik. I hope I have done justice to her language in this paper. Thanks also to the members of the field methods class at U.C.L.A., 1978, all of whom contributed to this project. These people are: Pam Munro (class coordinator), Dena Abramowitz, Randy Hendricks, Judy Reilly and Yero Scylla. Also I am indebted to Bernard Comrie, whose lectures on ergativity form a basis for much of the work in this paper. All mistakes in this paper, however, are to be attributed to myself.
2. Possessors in Yup'ik are consistently isomorphic with ergative arguments, both in noun phrase morphology and verb agreement, c.f:

angutem angya-a.	angutem angyaq tangellruu-a.
man-gen boat-3sg-poss	man-erg boat-abs see-past 3sg/3sg
"The man's boat."	"The man sees the boat."

I have labeled the -a in example (10) a "possessive" marker because the form to which it is attached distributes as a noun. The same suffix attached to a verbal form would be a 3sg-obj / 3sg-subj marker. There is essentially no distinction between nominal and verbal inflectional morphology. Thus it is understandable that the "grammatical possessor" in example (10) should be the A (or ergative) argument of the verb.

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NOUN AND THAT-CLAUSE IN APPPOSITION

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0. This paper is aimed at proposing some syntactic and semantic rules by which that combines with certain kinds of nouns to function as an appositional conjunction. Thus, what are the basic rules which link the that-clause and fact in the following sentence:

- (1) I know the fact that the earth goes around the sun.

1. Approximately forty years ago, Jespersen (1927: 36) said in this connection that the clause is added to certain kinds of substantives such as belief, conviction, notion, idea, reason, fact, and the like. However, his observation does not in itself generate the rules operative in combining a noun with a subordinate conjunction that. Those rules remain to be specified.

According to the OED, that is a "conjunctive participle" by which a noun-clause can be joined with a verb, e.g.:

(2) We all know that he once lived here.
There it is said that "the use of that is generally held to have arisen out of the demonstrative pronoun pointing to the clause which it introduces," and, further, that "it introduces a dependent substantive-clause in apposition with a substantive therein." Thus, that of this type has been used for more than a thousand years, and appositional that, in particular, has also been long in use.

It is easy to imagine that an appositional conjunction, that, occurred as a result of various formal shifts. Now, it functions syntactically to directly relate a noun to the clause which follows, and it also, complementarily, carries semantic value for greater concreteness, vividness, and detail on the part of the that-clause.

Of course one cannot assume that all nouns may be semantically supplemented by that-clauses. For example, we are allowed to say:

(3) I know the fact that the book sold well.
But we are not permitted to say:

(4) *I bought a book that the hero dies finally.
Sentence (4) is ungrammatical because the word book does not permit combination with the that-clause either semantically or grammatically.

It is therefore advisable to state the rule by which a noun can be selected as suitable to be followed by a that-clause. The noun prior to a that-clause represents a concept that does not give a concrete picture of itself, and the clause led by the conjunction that particularizes the concept the noun is meant to express. That is, it explicates, or supplements, or specifies what the noun is expected to signify.

The word fact, in (3), has a wide range of implications, and in a stream of utterances it always requires to be accompanied by sufficient explanation to fully convey any specific idea. According to the Concise Oxford Dictionary, it often occurs with an explanatory clause or phrase, due mainly to its own inherent semantic characteristics. On the other hand, the word book connotes primarily the visible, physical, bound object, and not the intellectual contents of the tome. Book represents a thing.

Thus the differences between fact and book are differences in degree of abstractness and in degree of semantic alternativeness, i.e., of capacity for variety in meaning. These differences may be tabulated as in Table 1.

TABLE 1

'Fact'	'Book'
-count	+count
-form	+form
-visible	+visible
-product	+product
+concept	-concept
+semantic alternativeness	-semantic alternativeness
+abstract	+concrete
...	...

Some words which fall into a 'fact' category are: idea, news, doubt, proposition, suggestion, demonstration, certainly, awareness, and possibility.

In quite a different category are concrete nouns, pertaining to countable objects, such as: stone, doll, house, room, ticket, typewriter, etc.

Words in the latter category cannot combine with an appositional that-clause, e.g.:

- (5) a. *He sent me a stone that my name is carved.
- b. *They decided to destroy the house that the former prime minister lived.

Such concrete nouns can, of course, be modified by clauses led by relatives. The postmodified noun looks like fact in

(3). But the relationship between a 'fact' noun and the subsequent clause is quite different from that between a 'book' noun and the clause, in that the clause in the former case comprises a full sentence while in the latter it does not. The former has a noun in apposition to the postposed clause, while the latter has a noun postmodified by a relative clause.

Words so high in abstractness and semantic alternativeness that they call for exemplification, specification, or other supplementation as to meaning, are often postposed by a noun-equivalent clause led by that, e.g.:

- (6) a. Katz takes the view that a semantic theory in his sense should aim to give a complete characterization of the semantic properties of all utterances.
- b. We have lacked the motivation that you've had to seek a special term.
- c. It is amusing to note how...the makers of the motion picture 2001 missed the point in their suggestion that subhumans turned into man with the discovery that bones can be put to effective use in striking an opponent.

The that-clause should be considered to be syntactically parallel with another noun--a noun which comes prior to the clause--on account of its function and semantic relationship with the noun. For the sake of convenience, such a noun may be called 'head.' Being syntactically parallel means being in apposition.

To repeat from Table 1, head nouns possess such semantic features as [-count], [-form], [-visible], [+semantic alternativeness], [+abstract], etc. For further examples:

- (7) a. The evidence that corresponding active and passive sentences are in large measure equivalent is entirely semantic.
- b. Starting from the premise that there are certain universally available processes...
- c. This might be done without losing the generalization that transformations are meaning preserving.
- d. This is not a statement that a sentence consists of a noun phrase and a verb phrase.

In such sentences, the that-clause comes immediately after the head noun, but it is also possible for words to be inserted between the head noun and the that-clause--sometimes, even a main verb:

- (8) a. She did contradict Talmadge's sworn statement during their divorce proceedings, in 1977, that he kept no such hoard of cash.

- b. The suspicion stole over Carter's people that he may have to deal with the man they regard as his most formidable Republican challenger.

2. The kind of noun that combines semantically with the that-clause is generally termed an abstract noun. Some nouns are abstract nouns in their essence, e.g.: idea, doubt, danger, attitude, etc.

But other parts of speech can change into abstract nouns. First, verbs can become abstract nouns--gerundive nouns--though, in this paper, what is important is not just the suffixing but also taking into account a variety of morphological phenomena. For instance, suggest becomes suggestion, generalize becomes generalization, demonstrate becomes demonstration, etc.

Second, adjectives also can become abstract nouns by means of changing word forms. Aware, for example, becomes awareness, certain becomes certainly, etc. The morphological changes are due not only to lexical necessity but also to syntactic inescapability.

Abstract nouns, in short, have very often been used together with a clause which provides a piece of particular information elucidative of the merely general idea conveyed by the abstract noun. At the same time, the word that, which originally was a demonstrative pronoun referring to a following clause, came to function as a conjunction correlating a noun with an Equi-NP. Since then, that has become an appositional conjunction, grammatically linking a noun to an 'embedded' sentence.

3. The relatively frequent combination of a noun and an apposed that-clause is ordered as 'the + abstract noun + that-clause.' Abstract nouns have a wide area of meanings, thus presumably a lot of semantic alternatives available for elucidation, and that-clauses contribute to the specifying or particularizing of the concept that the noun possesses in itself.

Consider:

- (9) a. I got the impression that Japanese society is changing.
- b. He affirmed the now familiar dictum that a theory of language must include both a theory of performance and a theory of competence.

Both impression and dictum convey vague or alternative concepts, while the message of the subsequent clause is a vivid, concrete, picturesque elucidation of the noun in question. The clause is needed to make a semantic contribution to the noun, while, in case of a predicate verb being used which cannot be followed by a noun clause as its object NP, the noun is required to make a well-formed sentence

because of its own grammatical operation as an object NP.

Again, compare the following three sentences:

- (10) a. This invalidates the general observation that we are sensitive to it.
 b. *This invalidates that we are sensitive to it.
 c. ?This invalidates the general observation.

Sentence (10a) is grammatical and does not require further explanation or information to make listeners understand the whole meaning the sentence is supposed to express. In (10b), the verb does not demand a noun-equivalent clause as its object NP, but requires of its object to be a noun or nouns or noun-equivalent word group (Hornby 1974). The sentence (10c) is grammatical, but compared with (10a) is short of messages, thus whoever listens to (10c) always seems to ask what the general observation is.

Let me cite some other examples of this type:

- (11) a. The Chinese tacitly accepted the principle that they would not regain Taiwan by force.
 b. The position that the passive is transformationally derived is one that has become more and more controversial since Chomsky's original analysis in 1957.
 c. The main function is to minimize the risk that clusters will be wrongly grouped.
 d. The Board established the policy that a paper listed will normally be published.

I must add that certain nouns, though containing an abstract idea, cannot combine with an apposed that-clause because of their inherent semantic characteristics. Thus abstract nouns which describe state or condition are in no need of supplementary description:

- (12) a. *The temple is proud of the beauty that...
 b. *I told you the splendor that...
 c. *He complained of his anger that...

In short, [-condition] should be added to the list of semantic features under 'Fact' in Table 1.

Note that the above description is based upon lexical redundancy rules. In his article on nominalization, Chomsky (1972: 11-61) presents two approaches to the analysis of the internal structure of the noun phrase: the lexicalist and the transformationalist. As far as abstract nouns are concerned, no lexicalist approach or transformationalist consideration should be excluded in the effort to arrive at a reasonable and scientific analysis of abstract nouns in coordination with that-clauses.

4. Turning now to abstract nouns derived from verbs, verb-nominals can be formed comparatively freely from a propositional utterance of subject-predicate form, and the relation of meaning between the nominalized word group and the original utterance is quite regular and stable:

- (13) a. I will recommend that Congress adopts such a budget policy.
- b. The agency decided that it was necessary to ground the fleet.
- c. Brooks conceded that he had no firm evidence to convict them.
- (14) a. My recommendation that Congress adopts such a budget policy...
- b. The agency's decision that it was necessary to ground the fleet...
- c. Brook's concession that he had no firm evidence to convict them...

If we contrast the sentences in (13) with those in (14), we find that (14a), for example, is similar to (13a) in that, though the two work differently in sentences, what is conceived in both of them is, so to speak, identical. The transformations from (13) to (14) are said to be rather prevalent among the various types of nominal expressions in English such as infinitivization, hyphenation, and abstraction. The examples at (14) are of propositional form as well as of derived nominal form. The transformation from (13) to (14) is from a sentence to a nominal phrase; that is, verb-nominalization "involves a grammatical transformation from an underlying sentence-like structure" (Chomsky 1972:16).

What is remarkable is that a verb-nominal stands in apposition to the following that-clause in the same way as does an essentially abstract noun, syntactically speaking, but from a semantic point of view the verb-nominal does not always bear appositional relationship with the that-clause. In this case, verb-nominalization is characteristic of the combination of a main verb with its object nominal phrase.

Consider the following:

- (15) a. She had the feeling that he was slipping away from under her influence.
- b. What is required is a further demonstration that idiosyncracies disappear.
- c. I was skeptical about the general belief that syntax is based on semantic considerations.
- (16) a. She felt that he was slipping away from under her influence.
- b. What is required is that we demonstrate further that idiosyncracies disappear.
- c. I was skeptical that they in general believed that syntax was based on semantic considerations.

Roughly speaking, each sentence in (15) expresses the same idea as its counterpart in (16). Style aside, she had the feeling in (15a) can be transformed into the she felt of (16a). Though changed, (16a) elicits no misunderstanding whatsoever, nor does anyone regard the two sentences as different in meaning. The relationship between (15) and (16) is like that of twin brothers, and the paired sentences are

identical in terms of propositional and syntactic forms.

These facts lead to the conclusion that a verb-nominal head noun is substantially different from an essentially abstract noun. The former does not necessarily involve the meaning the clause expresses, while the latter does not always exemplify, restrict, or formulate the thought the verb-nominal head noun imparts.

Let me point out some further examples of this type. Note that they permit premodification:

- (17) a. It makes the explicit prediction that if English were to acquire a new modal, then this modal would also display the Pres/Past distinction.
- b. I reject the rationalist contention that the mind of the newborn infant contains innate ideas.
- c. The statements were directed against the then prevalent notion that phonemic analysis and description could be carried through without any reference to the grammatical organization of speech.

Other words could be inserted between a verb-nominal head noun and the associated that-clause, as follows:

- d. No one can challenge the statement, however, that the gap between animal and man is tremendous.
- e. There's an old saying in law, you know, that the consciousness of innocence makes any man calm.

These facts indicate that premodification and insertion can apply relatively freely upon demand, because what is influenced by the application of those transformations is nominal phrases.

5. Third, consider the adjective-nominalized form in concert with the that-clause, together acting as an object NP:

- (18) a. We think it is certain that Vance will resign at the end.
- b. They are becoming aware that many people still have difficulties with the everyday speech of native speakers.
- (19) a. We think of the certainty that Vance will resign at the end.
- b. There is a growing awareness that many people still have difficulties with the everyday speech of native speakers.

In (18a), the adjective certain is dominated by VP and has no syntactic, grammatical relationship with the clause which comes after it; the clause has been extraposed, and pronoun replacement (here, it) has been applied at some stage of the derivation. In the case of sentences like (18a), where the

certain is predicated of a proposition (Vance will resign at the end), it can be rightly assumed that an expression such as (19a) can be formed by transformation termed (predicative) adjective nominalization. That is to say, (18a) conveys the same message as does (19a).

Consider the following:

(20) a. One is led to contemplate the possibility that some knowledge available to speakers is innate.

b. NTSB experts have ruled out the possibility that the bolt was the culprit.

In both (20a) and (20b), possibility can be considered to have been derived via nominalization from it is possible, so as to simplify or consolidate the expression from a stylistic point of view. Conversely:

(21) a. One is led to contemplate that it is possible that some knowledge available to speakers is innate.

In (21), possible operates as an adjective dominated by VP; the clause has been extraposed and pronoun replacement applied; and possible has no grammatical relationship with the clause that follows.

Concerning (20b), the possibility can be substituted with it is possible, though the result sounds a little extraordinary. Therefore, it can be said that, supposing possible to be of predicative use and with a noun-equivalent clause following it, it is possible can become the possibility with the position immediately after it being filled by an appositional clause.

I must add that that as an appositional conjunction differs from that as a complementizer helping to clarify that the clause led by that was extraposed: possibility comes to form a grammatical connection with the clause despite its having been in no contact with the clause.

The sentence it is possible that some knowledge available to speakers is innate is grammatically acceptable, so it seems appropriate to transform it into a nominal clause for the purpose of functioning as an object NP in (21). A conjunction acts differently: there is a transition from a conjunction which leads an extraposed clause to the one which correlates an abstract noun with a noun clause. Nominalization and apposition apply simultaneously. It is upon this assumption that the generation of (20b) is best explained, i.e., (20b) is probably generated through the presence in the underlying structure of it is possible that the bolt was the culprit.

Let me give another illustration:

(22) At that point we will also be faced with the strong likelihood that the chimp is capable of thinking rationally in terms of abstract concepts.

The sentences at (20), (21), and (22) invite me to assume that when an adjective is nominalized which is dominated by VP

within a pronoun replacement sentence construction in which extraposition applies, the newly derived noun can occur accompanied by an appositional that-clause (originally, an extraposed clause).

The sentence (19b) differs from (19a) in the function of an adjective from which a noun, awareness, is derived. The adjective in (18b) is predicated of a person. If this kind of adjective is nominalized in the derivation, its morphological result can have an appositional clause led by that. Let us examine the following:

- (23) a. He is happy that his mother has got better.
- b. She was surprised that he died young.
- c. The agreement reflected that they became aware recently that the entire world was now stretched over the oil barrel.
- (24) a. His happiness that his mother has got better...
- b. Her surprise that he died young...
- c. The agreement reflected a new awareness that the entire world was now stretched over the oil barrel.

(24a) is grammatically valid enough to be able to function as an object or subject NP. It is of the same propositional form but of a different syntactic form. Surprised in (23b) is appropriately regarded as an adjective because in colloquial speech it could be modified by very. What interests me is that, if nominalized, it reverts to its original word form, and *surprisedness is not derived.

As mentioned earlier, adjective-nominalized forms like the following are ungrammatical:

- (25) a. *the prettiness that...
- b. *the awkwardness that...

The adjectives pretty and awkward can become predicated of a person, but they cannot be followed by a that-clause as object NPs.

In respect of the pattern 'noun + appositional that-clause,' it is true of both verb-nominalization and adjective-nominalization that the nominalized word is in syntactic apposition with its associated clause but cannot be regarded as in semantic apposition with it. An abstract noun, on the other hand, links up with its following that-clause semantically and syntactically to form an NP which dominates N and S.

6. Fourth, we should make some reference to idiomatic expressions. Those, though similar to original abstract nouns, differ in that they have no semantically close connection with the clause. Compare the following:

- (26) a. Consequently, to the degree that we recognize tacitly the existence of such notions as good results vs. unwanted results, it becomes evident that one is committed to some notion of psychological reality.

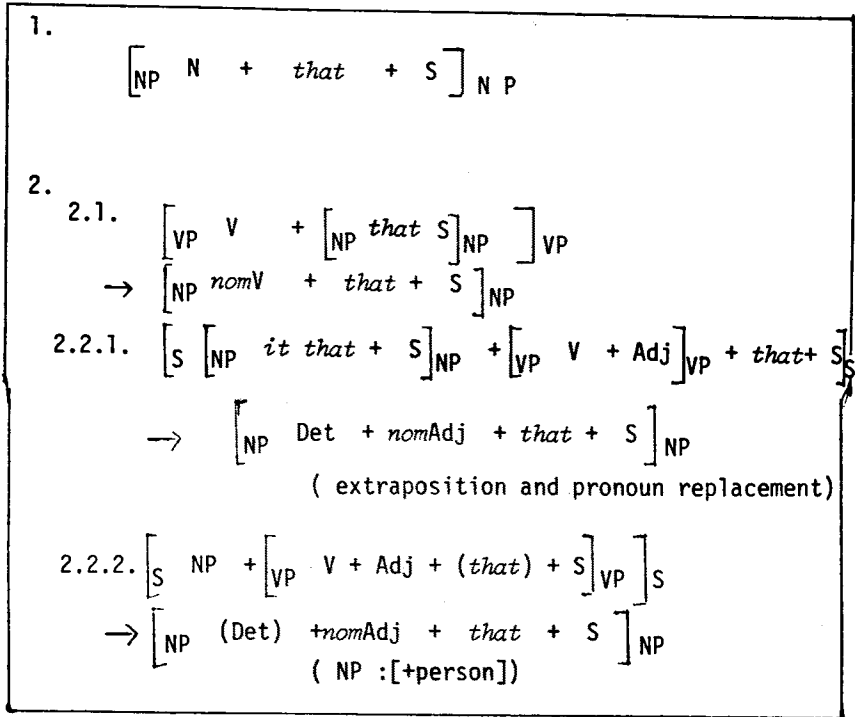


Figure 1. Rules for generating 'noun + that-clause in apposition.'

- b. The Governor decided in favor of Mason, on the ground that the granting of a special term did not militate against any necessary delay of the trial of the case.

Degree and ground are idiomatically used,² because words of this type are essentially without any distinct semantic relation to the content of their associated clauses; contrast impression in (9a) and dictum in (9b). Degree, in the present case, means a stage in intensity or amount, so the content of the clause represents one example in reference to a stage. Impression and dictum, on the contrary, introduce what is contained in themselves: constituent elements of an impression and a dictum, respectively. It must be regarded as appropriate to think that expressions such as degree that and ground that are formed by analogy.

7. It seems that if apposition is defined as the placing of a word syntactically parallel with another, the four groups of 'noun + appositional that-clause' discussed above should be individually analyzed from both the lexicalist and the transformationalist viewpoints, as has been done in this paper. On the other hand, if "apposition resembles coordination in that typically the two or more units in apposition are constituents of the same level" (Quirk et al. 1972: 623), then the four groups should be dealt with alike from the transformationalist standpoint alone. I would like to support Chomsky's argument that "it is quite possible to imagine a compromise solution that adopts the lexicalist position for certain items and the transformationalist position for others" (Chomsky 1972: 17).

I wish to assume that two classes result from my analysis of 'noun + appositional that-clause' in English. The effects they produce are almost identical, but at a deeper level they differ substantially. One has been developed from the coordination of at least two nouns (including noun-equivalents), and the other has been formed by analogy: the nouns derived from verbs and adjectives and a small class of some abstract nouns have been able to be followed by the clause led by that in the same way as an original abstract noun is exemplified, or formulated, or supplemented by the addition of a that-clause.

I propose the the schemata in Figure 1 as evidently closely related to the generating of 'noun + that-clause in apposition.'

NOTES

- (1) Truth in the following might be regarded as an abstract noun with [+condition]:

No complaining can change the hard truth that OPEC countries plan to continue to capitalize on their dominant positions.

- (2) The following that looks like an appositional conjunction, but actually cannot be treated in the same way:

At the time that you first met this Miss X you were still in love with Robert, were you--or were you not?

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THE IMPERATIVE,
IN RELATION TO OTHER VERBAL FORMS OR FUNCTIONS

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I

In English and many other languages the verb on the whole is morphologically at its simplest when it is imperative. This is an essential fact of the languages concerned, and ought to be reflected in the order of presentation in a grammar, unless there be some overriding consideration. For example, a grammar that is really just a manual for foreign visitors with a limited, practical interest can reasonably begin with questions and answers. But supposing the purpose is to cover the language as a whole most intelligibly, the imperative should be the starting point for explanation of the verb.

Few grammars actually give primacy to the imperative. But that is due, I maintain, to the history of grammar, not to the facts of language, which are plain enough. Take the simplest English utterances such as *Run* or *Jump* or *Eat*, with no politeness added.¹ To make them other than imperative, a subject must be indicated; *They run* is a minimum example. When I say *Run*, common sense will allow that something like a subject is understood, but in the ordinary, not the grammatical meaning of *subject* and of *understood* (*entendu* in French, not *sous-entendu*): i.e., the person or persons I address understand what is obvious, that I want them to run. For that is the basic setting for speech: people assume you are talking to them when you appear to be.

Most verbs -- at any rate, most verbs that are used often -- primarily tell someone to do something. The "someone" can be expressed, as in *Run, John* or *John, run*; but the utterance is in no way defective or abridged if it consists entirely of the verb -- no more than *It's raining* is an abridgement of *John, it's raining*. *Run* or *Jump* -- all by itself -- is natural, complete, and communicative. To be sure, it is not segmentable into morphemes and therefore does not constitute a structure, the meaning of which depends on the relation of the parts to each other. But that does not detract from its adequacy and meaningfulness. For we need scarcely entertain the fallacious commonplace of semi-popular linguistics that words carry no meaning individually or in isolation but only in context.²

Run, John or *John, run* is indeed a kind of structure -- the freest, most elementary structure that is regular in English.

¹I capitalize to indicate that these readily constitute a sentence or utterance by themselves.

²It was intended to correct the more naive fallacy that a word has, or ought to have, a single, invariable meaning -- an ideal aimed at in artificial languages.

John runs is a momentous further step in structuring; now the order is fixed, and the subsidiary morpheme *-s* /-z/ is indispensable.³ On the semantic side, the verb in this combination does not tell someone what to do. Or to put it more precisely, according to English grammar, the verb in *John runs* does not necessarily tell John what to do. It is still possible for the verb to convey a virtual command, as in *John runs; I tackle; you kick*.⁴ To show that I, the speaker, am only observing or commenting, not directing, we resort to a more complex expression, *John is running, I'm tackling*, etc. In a different situation *John runs* is understood as a habit or characteristic.

The distinctions of English are not of course universal. In Spanish, for instance, *Corre* is equally the imperative singular 'Run' and the third person singular indicative 'He (or she) runs.' We happen to have access to the history of this language, which proves that a former distinction has been neutralized. *Curre* in Latin was only imperative; 'He (or she) runs (or is running)' was *Currit*. The earliest Spanish shows the final consonant or a modification of it (-d, -z) often written and no doubt pronounced.⁵ Gradually the two verb-forms merged, with total loss of the consonant and total identity of the vowel. So now the indicative function of *Corre* seems as fundamental as the imperative function -- no more, no less -- unless some non-morphological criterion be adduced. The imperative involves only two persons, A the speaker and B the one addressed, whereas the indicative involves a third person besides them; but in Spanish the historical development has made the difference in situation between two persons and three grammatically irrelevant.

There are, however, several verbs whose imperative is briefer; e.g., *pon* 'put,' opposed to *pone* 'he (or she) puts.' The Latin sources are *pōne* and *pōnit* respectively. But the intermediate history, after the dropping of the final consonant, betrays much fluctuation during the later middle ages between the presence and the absence of the vowel *-e* in the indicative;⁶ the imperative is

³So this "-s of the third person singular present indicative" is not (as is often argued) redundant, although nearly always reinforced by junctural and intonational features different from *John, run*.

⁴To decide whether *You kick, You run*, etc., is definitely imperative or definitely indicative, is often unfeasible. But the negative is clearly differentiated: *Don't you run* is never a statement; *You don't run* is never a command.

⁵R. Menéndez Pidal, *Orígenes del español*, 3d ed. (Madrid, 1950), pp. 351-353. Similarly 𐤒 {-d} when written in Hebrew characters; "Cantos románicos andalusíes," *Boletín de la Real Academia Española*, XXXI (1951), 203.

⁶Adolf Zauner, *Altspanisches Elementarbuch* (Heidelberg,

naturally far less frequent in the texts, no matter how prominent it may have been in everyday speech.⁷ When *pon*, the imperative, and *pone*, the indicative, were ultimately stabilized in Castilian, it was one more outcropping of the tendency to associate an imperative meaning with the shortest form of the verb.

Another phenomenon of Spanish enables us to see this tendency in a broader perspective. The shortest form of the verb that means 'know' is *sé* 'I know,' which is exceedingly frequent with the negative, *No sé* 'I don't know.' The verb otherwise has at least two syllables, as in *sabes* 'you know,' *sabe* 'he (or she) knows' -- which is imperative also but infrequently, just as we seldom make the English verb *know* imperative. It is safe to reconstruct the origin of *sé* as a variant of the unrecorded **sepo* from *sapiō* 'I have sense' in Latin, since the Latin subjunctive *sapiam* and *sapiat* became *sepa* and the same process of Umlaut produced *quepo* 'I fit' from *capiō* 'I take' and the subjunctive *quepa* from *capiam*, *capiat*.⁸ The primary use in Spanish of the verb 'know' was to state either 'I know' or 'I don't know'; hence the community moved to adopt the phonetically minimal form here and nowhere else in the conjugation of this verb. A linguist with a general grasp of patterns of discourse will hardly be surprised by the anomalous brevity of *sé* in Spanish -- although other languages are not bound to behave the same way.⁹

1921), pp. 25, 70-71; Rafael Lapesa, *Historia de la lengua española*, 3d ed. (Madrid, 1955), pp. 165, 174; V. García de Diego, *Gramática histórica española* (Madrid, 1951), pp. 53, 213-214. Verbs that now have the same opposition as *pon* : *pone* include *sal* 'go out' (< *salī*) : *sale* (< *salit*), *ven* 'come' (< *uenī*) : *viene* (< *uenit*), and *yaz* 'lie down' (< *iace*) : *yace* (< *iacet*), but *yace* can also be imperative; A. García Elorrio, *Diccionario de la conjugación* (Buenos Aires, 1946), pp. 28-29, 34-35, 43-44, 49-50.

⁷Through courtesy nearly every character in the *Cantar de mio Cid* is addressed in the plural *vos* rather than *tu*.

⁸Pierre Bec, *Manuel pratique de philologie romane*, I (Paris, 1971), 276. The digraph *qu* is merely a graphic makeshift for /k/ before a front-vowel.

⁹In Italian, a close relative, a short form is not limited to *so* 'I know' but is found also in *sai* 'you know,' *sa* 'he (or she) knows.' The two languages agree, however, in having short forms from another Latin verb:

	Spanish (<u>auxiliary only</u>)	Italian
<i>habeō</i> >	<i>he</i>	<i>ho</i>
<i>habes</i> >	<i>has</i>	<i>hai</i>
<i>habet</i> >	<i>ha</i>	<i>ha</i>

Italian is more inclined to short forms in the 2d and 3d person singular (and 3d person plural) of the indicative (*faī*, *fa* < *facis*, *facit*, as against *haces*, *hace*), but rather less inclined to

The short form *sé* is semantically neat because the experience of knowing is most familiar in the speaker's statements. By the same token the brevity of the imperative of many more verbs in numerous languages argues that these verbs are experienced above all as commands, and that anything else is less immediate.

II

In English the absence of a subject is generally enough to convey an imperative meaning. Colloquially we may omit the subject of a non-imperative verb, when an imperative interpretation would be absurd anyhow;¹⁰ e.g., *Feel sick today* instead of *I feel sick today* or *Do you feel sick today?* *Thank you* is a special instance, because the full *I thank you* is highly ceremonious and appropriate only when anything smacking of the colloquial would be undignified. The object *you* in *Thank you* or *Bless you* is incompatible with an imperative in modern English.¹¹ With any other object *Thank* is imperative, though much less frequent; e.g., *Thank him*. In the originally subjunctive expression *Bless you* or *Bless me*, the subject *God* that would be expected with this verb is omitted for a euphemistic motive.¹² Especially right after a sneeze, pious people must have apprehended that the prayer was superstitious, if not profane; so they were more comfortable

them in the 1st person singular (*vado* or *vo* < *uādo*, as against *voy*) and in the imperative.

¹⁰Greta B. Little, "Subject Deletion in English," *The Fifth LACUS Forum* 1978, pp. 289-297.

¹¹In early modern English it was normal to say *Wash you*, with an unemphatic reflexive (Is. 1:16 according to the King James and other translations).

¹²The *Oxford English Dictionary* cites *Bless us* as early as Milton, *Sonnet* 11[12].5; he puts it into the mouth of Puritans of limited literacy, who cannot make out even the title of his treatise *Tetrachordon*. With the verb *bet* the omission of the subject *I* is probably euphemistic also, since betting has been considered not just immoral but irreligious. *Bet it's the mailman* sounds more normal than *Guess it's the mailman*, while **Think it's the mailman* would surprise me. *Bet you a million to a bit of dirt* was recorded by J. Redding Ware, *Passing English of the Victorian Era* (London [1909]), p. 27, as "*Sporting*, 19 cent." *You bet*, which was noted as American slang in 1857 (Eric Partridge, *A Dictionary of Slang and Unconventional English*, 7th ed. [New York, 1970], p. 49), presents the coaxing use of *you* with the imperative; but that it has been taken for a euphemism in place of *I bet*, appears from the anomalous phrase *You bet you* or *You betcha*, cited first from Stewart Edward White, *The Rules of the Game*, in 1910 (*O.E.D. Supplement*, I, 248).

with the holy word suppressed. Apart from such odd cases, the verb without a subject in English is imperative.

The tradition among grammarians, however, has been to pay prior attention to the indicative. This is not surprising in the circumstances under which the study of grammar began. In ancient Greece it was an outgrowth of logic, which was bound to make the declarative sentence paramount since that one kind is testable for truth or falsity. Anything else in language was of secondary concern. I say this not to disparage those founders of Occidental grammar but to recognise that the motives of the researchers always affect their perception of the material.

Besides, the Greek imperative forms did not reveal themselves as manifestly the basic ones, from which all the others were constructed by adding some element. If you judge only by the letters, *τρέχε* 'Run' seems no shorter than *τρέχω* 'I run, I am running',¹³ which the ancient grammarians were in the habit of citing to stand for the verb as a whole; e.g., *καὶ ἔτι τὰ παρὰ ῥήματα εἰς ᾧ βαρύτονα καὶ αὐτὰ βαρυτονεῖται ἰσοσυλλαβοῦντα· οἷον πλέκω πλόκος, σπείρω σπόρος, λέγω λόγος, φέρω φόρος, οὕτω καὶ τρέχω τρόχος* 'Also the [nouns] associated with verbs in -ω with recessive accent are themselves accented recessively, having the same number of syllables: as "I weave" -- "a web," "I sow" -- "a sowing," "I speak" -- "a speech," "I bear" -- "a burden" [= tribute], so too "I run" -- "a running" [= a race].'¹⁴ But the two final vowels are not on an equal footing, -ε being short and elidable before a vowel at the beginning of the next word, while -ω is long and unelidable. The grammarians were certainly aware of this from studying the meter of the classical poets, even if contrasts in vowel-length were no longer a feature of Greek pronunciation in their own time. Anyhow they never broached the analysis of a verb paradigm, to see about deriving the other forms from an imperative singular like *τρέχε*.

The modern Indo-Europeanists, through comparison with several related languages, have been better able to appreciate the -ε as the "thematic" vowel in its basic guise, with short ο as a deflection of it and long ω as a further modification. Not just the other verb-forms are derivable directly from the imperative singular, but also the noun *τρόχος* by Indo-European Ablaut, copiously represented in Greek. If you try to take any verb-form besides *τρέχε* for a starting point, you cannot avoid arbitrary, round-about steps, such as cancelling the -ω of *τρέχω* to make room for a different vowel or diphthong.

The Latin grammarians followed the Greek model closely and without hesitation, since their language was similar in this part

¹³ *τρέχω* has not only this indicative meaning but also the subjunctive, such as 'Am I to run?' (as we say in English 'Do I run?').

¹⁴ Ammonius, *De adfinium uocabulorum differentia* 478, p. 125 Nickau = p. 137 Valckenaer.

of its verb-morphology, as in many other respects. Later, through the influence of traditional Latin grammar, the imperative in any language was made to seem like a minor offshoot -- unjustified though that was in Latin itself if viewed objectively. Neither Greek nor Latin grammarians got the idea of abstracting the root, by removal of all endings or suffixes. That would have yielded in many verbs something contrary to the phonology of the language, as $\tau\rho\epsilon\chi-$ and $curr-$ are in isolation.¹⁵ On the other hand, there were in Latin some imperatives that seemed anomalous precisely because they lacked the final $-e$: fer 'bear, bring' (which has non-thematic cognates), $d\bar{ic}$ 'say,' $d\bar{uc}$ 'lead' (which arose in the pre-classical period as variants of $d\bar{i}ce$, $d\bar{u}ce$).

The roots in these classical languages of the Occident came to light only when the study of Sanskrit was brought in. The grammarians of India had analyzed the entire verb-system with incomparable exactness and so had identified a whole array of roots, suffixes, prefixes, and rules for combining them. In no instance is a Sanskrit imperative the same as the root, like fer in Latin; the corresponding root in Sanskrit, with the least vocalic quality, is $\{b^h r\}$, while the actual imperative is $\{b^h r\}$ $\{b^h ara\}$. It is the primary derivative from this linguistic abstraction, the root. Its suffix $\{-a\}$ is merely the thematic vowel, cognate to short ϵ or o in Greek.

The largest single class of Sanskrit verbs (called the "first" class by the Indian grammarians) and several smaller classes have the thematic vowel and, for the imperative singular, no further suffix. But many other verbs, including some very basic ones, are non-thematic and form the imperative singular with a distinct, accented suffix $\{-h\bar{i}\}$ or $\{-d^h\bar{i}\}$; e.g., $\{i^h\bar{i}\}$ 'go,' similar to $\{i\bar{h}\}$ in Greek but apparently not to $\bar{i}$ in Latin.¹⁶ Indo-Europeanists consider this type more antique; indeed, only vestiges of it are found in the European languages, and even in Sanskrit the thematic type and the imperative without $\{-h\bar{i}\}$ or

¹⁵Occasionally, in pre-classical Latin, the meter (but not the classicizing orthography of the mss.) shows a final $-e$ unpronounced, no matter how unwieldy the consonant-group:
 $Qu\bar{o} \quad n\bar{u}nc \quad | \quad \bar{a}b\bar{i}s?$ -- $M\bar{i}tte \quad | \quad m\bar{e}.$ -- $Ma\bar{n}e.$ -- $N\bar{o}n \quad m\bar{a}n\bar{e}d.$ -- $\bar{A}t \quad p\bar{o}l \quad \bar{e}g\bar{o}$
 $t\bar{e} \quad | \quad s\bar{e}q\bar{u}\bar{a}r$ 'Where are you going now?' 'Let me go.' 'Wait.' 'I won't wait.' 'But I swear I'll follow you' (Plautus, *Casina* 231).
 $Red\bar{d}e \quad | \quad c\bar{a}ntionem \quad u\bar{e}t\bar{e}r\bar{i} \quad p\bar{r}o \quad u\bar{i}n\bar{o} \quad | \quad <n\bar{o}>u\bar{a}m$ 'Give back a new song for the old wine' (*Stichus* 768). See also W. M. Lindsay, *The Latin Language* (Oxford, 1894), pp. 517-518.

¹⁶It is possible to argue that $\bar{i}$ arose through contraction of $*i^h\bar{i}$, since $m\bar{i}h\bar{i}$ 'for me' and $n\bar{i}h\bar{i}$ 'nothing' have the contracted alternants $m\bar{i}$, $n\bar{i}$ (used by Plautus to the exclusion of $n\bar{i}h\bar{i}$); Lindsay, pp. 57, 144, 422. But the old spelling $e\bar{i}$ seems to indicate a real diphthong, as in many other words (though not all).

{-dhí} were gradually gaining.¹⁷ In this language too the diachronic trend favored the paradigm in which the imperative is the shortest form and the rest are readily derivable from it.

So we are in a position to improve upon those philosophers of language, beginning with Giambattista Vico, who theorized that mankind in the first place used verbs only to give orders, and monosyllables at that -- before any longer utterances were developed.¹⁸ For us it is unnecessary to posit that certain imperative forms in recorded languages have survived from a primeval stage, and that that is why they are simpler than the related verb-forms. For regardless of what the earliest language or languages may have been like, there is a recurrent tendency toward simplicity of the imperative, and it prevails more than other tendencies. How long it has been operating in the pre-history as well as the history of languages, is beyond our grasp, if not beyond our speculation.

Had Vico applied his general theory of recurrence to the phenomena of monosyllabic imperatives, he might have allowed what the Indo-Europeanists have subsequently shown, that the very ones which he fastened upon in Latin -- *es, stā, ī, dā, dīe, fac* ('be,' 'stand,' 'go,' 'give,' 'say,' 'do') -- evolved from bisyllabic forms through either phonetic or morphological changes. According to an opinion that is now widespread, languages were current and changing for many thousands of years before the first evidence of them -- i.e., written evidence. That would entail a cyclic rather than a linear development. In historical times, however, we can hardly ever trace a complete cycle of any feature of language -- beginning, gaining ground, dying out, and then reappearing.

¹⁷W. D. Whitney, *Sanskrit Grammar*, 2d ed. (Cambridge, Mass., 1888), pp. 256-257, 267-268.

¹⁸(*Principj di Scienza nuova*, 1.2.60, §231: "Le lingue debbon aver incominciato da voci monosillabe; come, nella presente copia di parlari articolati ne' quali nascon ora, i fanciulli, quantunque abbiano mollissime le fibbre dell' istrumento necessario ad articolare la favella, da tali voci incominciano." 2.2.4, §453: "E pur i verbi che sono generi di tutti gli altri -- quali sono '*sum*' dell' *essere*, al quale si riducono tutte l'essenze, ch' è tanto dire tutte le cose metafisiche; '*sto*' della *quiete*, '*eo*' del *moto*, a' quali si riducono tutte le cose fisiche; '*do*', '*dico*' e '*facio*', a' quali si riducono tutte le cose agibili, sien o morali o famigliari o finalmente civili -- dovetter incominciare dagl' imperativi; perché nello stato delle famiglie, povero in sommo grado di lingua, i padri soli dovettero favellare e dar gli ordini a' figliuoli ed a' famoli, e questi, sotto i terribili imperi famigliari, quali poco appresso vedremo, con cieco ossequio dovevano tacendo eseguirne i comandi. I quali imperativi sono tutti monosillabi, quali ci son rimasti '*es*', '*sta*', '*i*', '*da*', '*dīe*', '*fac*'." (In Fausto Nicolini's 4th ed., *La Scienza Nuova seconda* [Bari, 1953], I, 95, 194.)

III

Many verbs, from their meaning, are seldom if ever used imperatively. Examples in English are *itch*, *ache*, *snore*, *faint*, *decay*, *seem*,¹⁹ *flutter*, *gravitate*, *resound*. It is more accurate to state that the simplest form of a given verb will serve as the imperative than that the imperative is the simplest form. The latter statement needs a proviso excluding those categories of verbs which do not fit into the situation of A telling B what to do.

In this connection we must observe that while there is a verb *be* which is indeed primarily imperative, nothing indicative is formed from it. *Am*, *is*, *are* should not be called its "surface" forms; to do so is to state not an abstraction but a fiction. The semantic relation, as illustrated by *Be careful* and the retort *I am careful*, is most like *Study* and *I do study*. *Be* goes with nearly all the same predicates as *am*, *is*, *are* and *was*, *were*; but we look in vain for anything more specific that it has in common with them. When grammarians associate them for the sake of symmetry, that is on a par with the convention of putting *they* into a table as the plural of *he*, *she*, *it*. The language itself has eliminated the use of *be* as an alternative to *are*; e.g., Gen. 42:31 in the King James version, "We are true men: we are no spies. We be twelve brethren." Until the sixteenth century *we be*, *ye* (or *you*) *be*, *they be* prevailed outside of northern England and Scotland; but *are* gained during that century and still more rapidly in the seventeenth. It won out completely in standard English, though not in all dialects.²⁰

Present-day linguists, including the transformationalists, have inherited a large apparatus that served generations of language teachers. It must have seemed helpful, at least on balance; but it is liable to turn into a Procrustean bed, distorting the phenomena of language instead of clarifying them. The old maxim that a sentence consists of subject and predicate has entailed the positing of a subject when there is none. The missing subject, in traditional terms, was "understood." Now it is called a "deleted noun-phrase," which is worse in that you can hardly avoid imagining the NP to be really there at some prior and deeper level of language -- only on the surface has it been wiped out. Such a round-about, gratuitous exercise, applied to imperative utterances, can have only a metaphysical justification; it interferes with perception of the facts.

¹⁹ A classic instance to the contrary is in *King Lear* 2.4.201, "I pray you, father, being weak, seem so" = 'Don't talk as if you were still in your prime.'

²⁰ As an archaism the indicative *be* survives marginally in the Biblical phrase from St. Paul, "the powers that be" (Rom. 13:1), often quoted with a hint of mockery which the odd wording enhances.

AS WELL AND AS WELL AS

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Dictionaries and usage reference works treat the phrases as well and as well as as set phrases whose meanings vary according to the environment in which they occur. This polysemic interpretation helps resolve the problems of dictionary making, but it does little to explain the nature of the constructions and their relationship to either the comparative as or the evaluative term well. That there are obvious relationships becomes apparent when the data are analyzed.

The role of well in the two constructions has been underestimated for the most part, creating the illusion that this well has no relationship to the evaluative well. In several recent papers, "Well, . . ." (1978) and "Lexical Integrity: Good, great, and well" (1979), I have shown that the adverb well has a single generalized meaning everywhere it occurs. Well apparently has two different senses, one a value or quality sense and the other an amount or quantity sense. Well is used in its quality sense in the following sentences:

1. Everything had gone well for me.
2. "Those are fine children of yours, well brought up, good manners."

In the following sentences, quantity or degree is evaluated.

3. The cork holds the bait well off the bottom. . .
4. An ice hole was cut well away from other cracks or holes . . .

As well as occurs in both the quality and quantity senses.

Quality:

5. . . . this beautiful bird also boasts eyes so sensitive it can see as well in starlight as man can by full moon.
6. After a while he got up and brushed himself as well as he could . . .

Quantity:

7. You were pals on the debating platform as well as in the swimming pool.
8. Their mere existence is a testimony, as well as a contribution, to the somnambulistic state of a tired metropolis.

As well also occurs in both senses.

Quality:

9. She asked herself if she would have played as well against Martina Navratilova if she was playing for \$10,000.

10. Nor can anyone be certain that Prokofieff would have done better, or even as well, under different circumstances.

Quantity:

11. I remember feeling lonely. I was a little uneasy, as well . . .
 12. The media have influenced entertainment and the arts as well.

My argument is that as well (as) is always a comparison. Since this is obvious where quality is of concern, I will concentrate on the quantity sense of as well as, which is treated as a set phrase in dictionaries.

Compare sentences 3 and 7. In sentence 3, well supplies the meaning that the extent to which the bait was held off the bottom was more than adequate or satisfactory. The notion of measurement of amount is explicit because of the following preposition which in itself signifies a spatial relationship, i.e. something will be well over, under, above, beyond, into, or behind something else. In sentence 7 the sense of quantity is also one of degree or extent but here it is implicit. The combination of well, which is the positive or base degree of the well, better, best paradigm, with as, which supplies the meaning of equal degree, gives the sense of both quantity and comparison.

You were pals on the debating team to the comparable degree that you were pals in the swimming pool.

The pairing of the two elements, debating platform and swimming pool, with as well as rather than and shows the intent of the speaker to compare. If and is substituted for as well as the comparative element is lost and the concept of degree or extent is lost also. And places two or more elements in a set; as well as places two or more elements in a set on the basis of comparison.

The following examples illustrate possible as well as structures:

Nouns

Subject

13. Oddly, the skulls as well as the radio are likely to be Japanese.
 14. The readers as well as the characters have been involved in the evil and have been forced to recognize and judge their involvement.

Object of Verb

15. Any element of a medium may be playing a hidden role as well as its obvious one.
 16. "Don't you know, my child, that you should avoid the occasion of sin as well as the sin itself?"

Appositive

17. The drug had exaggerated all her emotions, fear and hostility as well as hope.

18. The entire enterprise, programs as well as commercials, revolves around the consumer merchandisers who find the medium the most effective way to sell their wares.
- Object of Preposition
19. "Recruiting? We concentrate on an area within a four-hour radius of Huntington. That gives us parts of Ohio and Kentucky as well as West Virginia."
- Gerund
20. Steinway, in the late 1800's, was in the business of managing artists as well as selling pianos to them.
21. It appeared from the limited information available that the aerated lagoon might offer a satisfactory means of increasing the capacity of existing oxidation ponds as well as providing the same degree of treatment in a smaller volume.
- Verbs
- Tenses
22. He lives as well as works in his office.
23. The discovery that he was utterly out of his depth amazed as well as frightened him.
- Bare Infinitives
24. But like many a lover, the Fox can break a heart as well as fill it.
25. For nature does reveal as well as conceal.
26. . . . to understand literary works as well as to enjoy them.
- Prepositions
27. Modern science derives from Rome as well as from Greece . . .
28. Evangelist speaks to us as well as to Christian.
- Adverbs
29. Physically as well as mentally, I have reached the limit of my endurance.
30. Kay said that he knows some judges socially as well as professionally.
- Adjectives
- Pre-Nominal
31. They belong to normalized oral as well as written speech, . . .
32. There were good dreams as well as bad.
- Predicate
33. They were often ignorant as well as underprivileged.
34. "The past I leave to historians," Felix intoned, demonstrating that he could be pompous as well as happy.

Present Participle

35. Western ground was burning as well as trembling.
 36. What it is trying to do is to protect the little man, too, as well as trying to maintain a flow of fresh meat to all stores, . . .

Past Participle

37. The foster-care system has extended sorrow as well as lessened it.
 38. It is at least possible that the capacity to postpone gratification is developed as well as expressed in a continuous and guided exposure to great literature.

As well as joins parallel structures: noun phrases with noun phrases, prepositional phrases with prepositional phrases, verbs with verbs, etc.

The same is true of as well constructions:

Subject Noun Phrase

39. Many of today's college cowboys and, in fact, many professionals as well, have been performers since they were eight or ten . . .

Gerund Appositive

40. Then I would be killing two birds with one stone, writing a novel and learning something practical as well.

Object of Verb

41. Denying my help, he'd managed to deny me my elation as well.

Object of Preposition

42. In addition, local seed oyster beds account for at least three-quarters of Virginia's seed oysters and a significant portion of Maryland's as well.
 43. For forty years the car has been the great leveler of physical space and social distance as well.

Adverb

44. The fire had gone ten miles when they reached it, and it was spreading laterally as well, along a front expanding with every second.

Sentence

45. The problems . . . are towering and unprecedented . . . and the response must be towering and unprecedented as well.

Both as well as and as well show a relationship between parallel structures. The relationship between the two phrases becomes clear when paraphrases of both are examined.

As well as paraphrased as as well:

Subject Noun Phrase

- 13¹ Oddly, the skulls as well as the radio are likely to be Japanese.

paraphrase: Oddly, the radio is likely to be Japanese and the skulls as well.

Object of Verb

15¹ Any element of a medium may be playing a hidden role as well as its obvious one.

paraphrase: Any element of a medium may be playing its obvious role and a hidden one as well.

Gerund

20¹ Steinway, in the late 1800's, was in the business of managing artists as well as selling pianos to them . . .

paraphrase: Steinway, in the late 1800's, was in the business of selling pianos to artists and managing them as well.

Verb

23¹ The discovery that he was utterly out of his depth frightened and amazed him as well.

Adverb

29¹ Physically as well as mentally, I have reached the limit of my endurance.

paraphrase: Mentally and physically as well, I have reached the limit of my endurance.

Adjective

33¹ They were often ignorant as well as underprivileged.

paraphrase: They were underprivileged and often ignorant as well.

As well paraphrased as as well as:

Subject, Noun Phrase

39¹ Many of today's college cowboys and, in fact, many professionals as well, have been performers since they were eight or ten . . .

paraphrase: Many of today's college cowboys and, in fact, many professionals as well [as today's college cowboys], have been performers since they were eight or ten. . .

Gerund Appositive

40¹ Then I would be killing two birds with one stone, writing a novel and learning something practical as well.

paraphrase: Then I would be killing two birds with one stone, writing a novel and learning something practical as well [as writing a novel].

Object of Verb

41¹ Denying my help, he'd managed to deny me my elation as well.

paraphrase: Denying my help, he'd managed to deny me my elation as well [as himself my help].

Object of Preposition

42¹ In addition, local seed oyster beds account for at least three-quarters of Virginia's seed oysters and a significant portion of Maryland's as well [as Virginia's].

- 43¹ For forty years the car has been the great leveler of physical space and social distance as well.
 paraphrase: For forty years the car has been the great leveler of physical space and social distance as well [as physical space].

The relationship between as well and as well as can be further illustrated by analyzing the relationships of the parallel structures. The data reveal that in each pairing of structures by the use of as well as and as well one pair provides a standard or base and the other is drawn to the forefront. Consider example 13. The structure following as well as, the radio, is the base, and the structure preceding as well as, the skulls, is the focused one.

I label the radio the base or standard because it supplies information that is commonly known. One expects radios to be Japanese. It is a fact of the electronics industry. The other element, the skulls, is not what one expects. It is the new information that is being provided in the comparison, and as such is brought into focus by placing it first in the parallel structure. Consider example 20. The basic structure following as well as gives us old information. Everyone knows that Steinway was a piano maker. The new information is that he managed artists. In example 14 the characters in the story obviously have to be involved in the evil. This is the old information, the basis for the comparison between the parallel structures. The new information is that the readers are involved in the evil, and this, of course, is the focus of and reason for the comparison.

The relationship of the parallel structures remains the same when as well is used; one structure is basic and the other is focused. When as well is a reduction of as well as, the positions of the basic structure and the focused structure are reversed. In as well as, the first as signals equative comparison and the second as points to the basis for the comparison. When the construction is reduced to as well, the second as is not there to point to the basic information so, the basic information is placed first in the construction and paired with the new information usually by the use of and but sometimes without. The construction then ends with as well. In example 39, today's college cowboys provides the basic information; many professionals provides the new information. The position of as well in the complete construction is construction final.

Dictionaries define as well as with the expression in addition to or also, but these two expressions merely add information; as well as is a comparison. A comparison does add something, but only by inference; the addition is not the central meaning. Consider the following three examples:

46. So, as well as knowing what the cursive form of the hieroglyphics are, the translator must know his scribe.
47. But it is clear duty to ensure that his protests, as well as being effective, shall be well-informed, morally sound, and socially valuable in the broadest way.

48. That is, as well as being an extremely saintly man, he was most personable.

In these three sentences the as well as expression precedes the focused element and the parallel structure is absent; the base element is a gerund. My impression is that these sentences are a little difficult to decode because the writer seems to have in addition to in mind even though he wrote as well as. In addition to would actually make the sentences easier to understand and the gerund form seems conditioned by the need of the preposition to have a nominal object. It may be that when as well as precedes the focus, it is impossible to maintain parallel structure and as well as must be treated as a compound preposition. In this position as well as does signify addition, but it does it less effectively than in addition to.

As well is closer to also. Consider the following:

49. "What's more," he reports, "real estate offers abundant ways to defer, decrease, or avoid taxation altogether, not only on its own gains but on your other income as well."
50. The tricks the two play upon Jacoby reveal their want not simply of decency but of imagination as well.
51. X, and Y as well
 X, and Y also
 X, and also Y
- not { only } X, but Y as well
 { simply } , but Y also
 , but also Y

Note that as well takes the place of also, not and also; however, as noted earlier, as well implies an implicit base of comparison while also does not. These sentences, by the way, also show that not only . . . but also is not an idiomatic construction, because simply can substitute for only and as well can substitute for also.

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PERFECTLY AND QUITE

Explicit and Implicit Contrastiveness *

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This paper is intended to demonstrate how careful collocational analyses of lexical items can elucidate the semantic core of these items. The conclusions which can be drawn from such analyses seem to support Charles Ruhl's views on semantic issues which underlie a new orientation in linguistics, termed by Ruhl "a holistic revolution". The principal tenets of this orientation are: a much more extensive amount of data is needed to enable us to arrive at reliable semantic conclusions; a monosemic view seems more realistic than the current polysemic one; paraphrases, which have an inflated value in current semantic research, are a highly deceptive tool. The source of inspiration for this new outlook has been Dwight Bolinger, who in his brilliant analyses, expressed with an elegance unsurpassed in linguistic literature, has opened our eyes to the fact that Transformational Grammar has not been able to give us a true picture of semantic issues. Through its neglect of a detailed analysis of words, slightly looked upon as matters of "performance", TG has had a tendency to confuse reference with meaning. The inevitable consequences are that transformational linguists have a polysemic view, which implies that an important generalization has been overlooked. Thus, TG has failed to see that an even greater order than it assumes underlies the use of language.

Compare the following two examples containing perfectly:

(1) 'Which studio, where? At his house?' - although Miss Brodie knew perfectly well. (Muriel Spark)

(2) Yet the chances are that thousands of perfectly staunch anti-Nazis secretly share his views. (The Observer 1968)

(The person whose views are shared is Hitler.)

At first glance the reader of these two examples may have a vague feeling that they have something more in common than the mere fact that they both contain perfectly. There is in both examples an unmistakable note of bizarreness, of incongruency. After a more careful analysis of the two examples the perspicacious reader may come to the conclusion that they have a similar structure.

In (1), what Miss Brodie says is not only an indication of absence

* I am greatly indebted to Dwight Bolinger who, in an answer to a letter, gave me many detailed suggestions as to the significance of perfectly. Because of this generous help my paper has gained significantly in scientific importance. Examples (49) - (79) were given by Bolinger.

of knowledge but her utterance is the explicit expression of such an absence: she speaks in a way which seems to prove that she does not know, let alone know well, and it is absolutely doubtless that she does not know perfectly well. An act whose very essence is "non-knowing-ness" is repetitively contrasted with a verb + adverb + adverb constituting a sort of scale in three steps away from this "non-knowing-ness". It will be my claim in this paper that the function of perfectly as an adverb of degree is to be the marker of such an emphatic contrast. The principal function of perfectly is to mark or signalize a semantic polarity or contrast in the highest possible degree. It will be furthermore claimed that unconscious knowledge of the appropriate-ness of perfectly underlies the speaker's selection of perfectly in such utterances as (1) and (2). The semantic structure in (2) is rather like the one we have just described for (1): A person who shares the feelings of Hitler, embodying the very essence of Nazism, cannot possibly be an anti-Nazi, let alone as such evince the quality staunch, and absolutely cannot be a perfectly staunch anti-Nazi.

First, let us look at (1). In this sentence the polarity responsible for the semantic tension which is a characteristic hallmark of sentences with perfectly prevails between know and its opposite, not know. Such a polarity between a concept and the negation of this concept may be viewed as a movement from one side of a dividing-line (the one on which the non-negated concept, know, has its position) to the other (the one on which the negated concept has its position). The end-point of this movement is textually emphasized, i.e. not know is explicitly expressed in what Miss Brodie says, her statement being the very essence of "non-knowingness". Thus, there is initially a heavy bias towards the negated concept, which is conspicuously placed in focus. Accordingly, not know is clearly thrown into focus, as opposed to the starting-point of the movement, know. Now, if we insert the modifying adverb well into the negative proposition, not know, that is, if we modify the proposition not know with well, she does not know well, a reverse movement is initiated such that we can say that the concept not know begins to be "lifted" upwards in such a way that the dividing-line is crossed once again. Thus, we can assert that well is the "lifting" element, and at the moment when the dividing-line is crossed, not in not know is erased through the superimposition of a heavily emphasized NOT. The function of perfectly, we will argue here, is precisely to act as the emphasizer, achieving the change from not to NOT. Thus, we get the following schema: not know well. Not know is being "lifted" by well such that not know crosses the dividing-line, attaching to itself in the process a superimposed not: not not know. An obligatory emphasizer, perfectly, is added: NOT not know. Our claim that this emphasizer is obligatory is justified by the fact that an unmodified well in (1) is not "grammatical" or semantically well-formed, although she knew well. Now, consider (2). The "lifter" is here the adjective staunch. It is necessary for a "lifter" to be, as it were, readily available for

the "lifting" action, i.e.--and this is of paramount importance for the entire article here concerning the semantic nature of perfectly as it is reflected in its collocational properties--it must not be placed too far away from the dividing-line. Put somewhat differently, the "lifter" must have a neutral flavour and be free from the element 'intensity'. For example, eager (eager anti-Nazis) would be placed too far away from the dividing-line to be called for to perform this "lifting" operation. This metaphor is here supposed to have the function of illustrating the fact that perfectly tends to collocate with adjectives and adverbs which are fairly neutral in character, free from the feature 'intense'. A corollary of this collocational principle, as far as perfectly is concerned, is that perfectly eager anti-Nazis would be an unnatural collocation.

Now, we can ask ourselves the question: how can it be claimed that staunch has a position so near the dividing-line that it is readily available for the "lifting" operation we have referred to above? Consider the following from W, as to the semantic essence of staunch: "STAUNCH suggests resolution, fortitude and conviction in adherence to and imperviousness to influences that would weaken it (my italics UB)". In accordance with this semantic property, we may say that the collocation staunch anti-Nazis has inherent in it a kind of reflection of its opposite, not anti-Nazis. The word anti-Nazis is naturally contrasted with Nazis (this contrastiveness is explicit in the affix anti -). Because of this inherent contrastiveness of anti-Nazis, there has been prior to the first crossing of the dividing-line a crossing of the dividing-line between Nazi and not Nazi (anti-Nazi). Thus, in this case, there is a movement from not Nazi (anti-Nazi) to not not Nazi. As in the case of the "lifting" operation in our previous case, where not know was lifted upwards across the dividing line to not not know, not not Nazis (not anti-Nazis) is "lifted" up to not not not Nazis. In this case, staunch and perfectly emphasize the superimposed not in cooperation, changing this not into NOT. Thus, there is a close semantic relationship between perfectly and staunch. Likewise, it may be said that there is a close semantic relationship between staunch and anti-Nazi in that both words reflect opposites, not staunch and Nazis (not not Nazis). As we shall see later, such a tendency to reflect opposites is a COMMON TRAIT OF MOST COLLOCATES OF PERFECTLY. Such a trait causes, as we have seen, three crossings of the dividing-line between non-negated and negated concepts. Repeated crossings like that imply that the collocations with perfectly are semantically complex. A complexity is coupled with a high degree of dynamicalness. Such a dynamicalness is in keeping with the pronounced polarity which is, it is argued here, the principal characteristic of perfectly. The marked polarity characterizing the extralinguistic circumstances which are expressed in sentences with perfectly in the function of an adverb of degree has a linguistic correspondence in that most collocates of perfectly are characterized by a similar polarity.

This linguistic polarity appears clearly, in the case of staunch, in the following citations from W:

(3) staunch adherence to majority decisions and the determination at all costs to preserve the unity of the party in the face of the political enemy are their forte.

Staunch counteracts the workings of the "political enemy" in a way which is similar to the way well counteracts not know in (1)

(4) ever a staunch Federalist, he viewed the policies of Jefferson and his followers with repugnance

Staunch has an undercurrent of 'fight' in it in that it reflects strong opposition against contrasting views.

Let us pause here and consider an interesting parallel offered by an explication in W of the adjective calm, which is obviously readily collocable with perfectly (occurrence in my material/ in addition there are two occurrences of at ease and one occurrence of serene): "calm suggests simple quietude, sometimes quietude in the face of disaster". This sense is illustrated by the following example:

(5) the senate, surprised but calm and energetic as usual, hushed up the news of these many defeats.

There is an air of forced self-control in this example, calm lifting up its opposite not calm much in the same way as well lifts up not know in (1).

In this context, let me quote another example with still, which is, as we shall see later, highly significant for perfectly:

(6) Hannah stood perfectly still with her arms hanging at her sides.

Hannah's stillness is a reaction to a shocking piece of information, which might well have released a wildly agitated reaction. The use of still here is in an interesting way reminiscent of "in the face of disaster" in the explication of calm in W referred to above.

Let us return to our observation made above that the focus is directed to the negated forms of the heads of perfectly: not anti-Nazis/not know. In the following two examples the focus is likewise directed on not calm in that perfectly calm is made to contrast with gross symptoms of violent agitation:

(7) We must remain perfectly calm (Swedish TV)

The person addressed here was in a hysterical fit.

(8) She nearly choked herself with laughing. "Mrs. Wingfield, please", said Rosa. "Please be calm" -- "I'm perfectly calm", said Mrs. Wingfield.

The extravagance in Mrs. Wingfield's behaviour ("nearly choked herself with laughing") underlies the choice of perfectly.

A fairly reliable method in the search for the semantic nature of perfectly as it is evinced in its collocational behaviour would be, it seems to me, to examine the collocates which have the highest frequencies in the range of perfectly. These are normal and understandable, which have eight occurrences each. Let us

first consider normal, as this adjective has characteristics which are highly pertinent for the analysis of the semantic structure of perfectly. What is particularly striking in this context is the fact that normal is, as it were, placed on a sort of dividing-line which strongly resembles the dividing-line which, in my discussion above, I have postulated for a concept and the negation of this concept. Normal, it might be said, expresses the message "neither more nor less", that is to say, if we should try to represent the semantic nature of this adjective spatially, we would visualize it as being placed on a line pointing to a negation in both directions: what is not normal because it is more than normal is to be found above this line, whereas what is not normal because it is less than normal is to be found below this line. We can, consequently, make the interesting observation that this collocate has inherent in itself the same kind of polarity which we said was a chief characteristic of extralinguistic properties which are expressed linguistically in texts where the adverb of degree perfectly occurs. Let us consider two examples with perfectly normal:

(9) Tooth deformity may be the result of excessive thumb- or finger-sucking, tongue-thrusting, or lip-sucking -- but it's important to remember that there is a difference between normal and excessive sucking habits. It's perfectly normal for babies to suck their thumbs, and no mother need worry if a child continues this habit until he is two or three years old. Occasional sucking up to the fifth year may not affect a youngster's teeth; but after that, if thumb-sucking pressure is frequent, it will have an effect. (BC).

There is here a very clear distinction between a "positive" and a "negative" side of a dividing-line, the "positive" side being represented by 'absence of fear of tooth deformity' in mothers, whereas the "negative" side is represented by fear that such a deformity may occur. Strictly speaking, normal means "according to a norm, neither more (higher) nor less (lower)". If we visualize the concept underlying normal spatially, as we did above, normal would not only be represented as a spot, but it would have vertical extension, i.e. the semantic field of normal would occupy an area having a certain width rather than being merely a point on the dividing-line which we have referred to above. Now, this word is useful for language users as constituting a border between what implies a risk and what does not imply such a risk, i.e. what justifies the selection of this adjective is usually the wish to establish the non-existence of a risk. This rather resembles the property of staunch referred to above: 'imperviousness to influences that would weaken it'. Thus normal in its use functions as a sort of guarantee that there is a freedom of risks. Compare in this context the following gloss in W: "occurring naturally and not because of any disease...". Thus, normal is suitable to fulfill the function of "lifting" up the negated concept 'no freedom from risk' to 'not no freedom from risk'. Then perfectly fulfills the function ascribed to it in

our above discussion, that of emphasizing the superimposed not such that it becomes NOT. We may here ask ourselves: what are the properties calling for this emphasis in the situation where perfectly is selected. Why is it not sufficient to establish the concept 'not no freedom from risk'; put somewhat differently: why must not be blown up to NOT? The answer to that question would constitute the justification for the selection of perfectly and would thus be the very core of the semantic nature of perfectly. I think that the correct answer lies in the bias towards the negative side of our dividing-line, in the fact that the negative side is so strongly focalized. This bias is particularly evident in (9), because there is a "pull" in two steps downwards from our dividing-line. This "pull" is even given mathematical precision: for a baby to suck its thumb is emphatically 'not no freedom from risk'; for a child who continues this habit up to the fifth year there is an uncertainty as to 'not no freedom from risk ("may not affect a youngster's teeth"); for a child older than five years to continue this sucking habit there is definitely 'no freedom of risk'. This double "pull" downwards widens the gap between 'no freedom of risk' and 'not no freedom of risk', and this widening of the gap requires that the superimposed not (not no freedom of risk) be given extra strength such that the "lifting" operation up to the safe position above our dividing-line is successful, as it were.

A similar downward "pull" in several steps, where these steps are given mathematical precision, is obvious in the following example: (10) Among this latter group there were also differences in the amount and kind of information necessary before a shift in reaction occurred. One subject changed when given only the information that some people have something happen to their arms when they relax. Five subjects, 12 per cent, did not change until they had been told that some people have something happen to their arm, what that something was, and also were given a demonstration. Four subjects, 10 per cent, did not change even then, but needed the additional information that an arm-elevation under these circumstances was a perfectly normal reflex action which some people shared while others didn't. (BC)

We need not go into the exact circumstances of the experimental test which is under discussion here. What is important for our purposes is to establish that there prevails here a semantic tension between a shift/change in the behaviour of the persons who are being tested and a non-shift/non-change. Such a change, it is clear from the context in our example, is the desirable response. Thus, the positive side of our dividing-line is here "change", whereas the negative side is the non-occurrence of such a change. Furthermore, it is clear that there is a variation in the resistance in the test persons to reacting with this desirable change: one subject evinced only little resistance, five subjects evinced a stronger resistance, and finally, and this is very important for our discussion here, four subjects required the information that a change

in their behaviour would be normal. Thus, the "lifting" power of the adjective normal is in clear evidence here in that this adjective reverses the downward "pull" from the "positive" change side of the dividing-line such that even those who show the more perseverant resistance evince the desired change reaction. Hence, the word normal, by superimposing not to not change, has the power to reverse the downwards movement up to a position above the dividing-line. But, because of the downward trend, which causes a widening of the gap between change and not change, normal needs assistance to assure the end of the upward movement a safe position above the dividing-line. Perfectly, by blowing up the superimposed not to the emphatic NOT is called for to give this assistance. In this way perfectly and normal cooperate in reversing a downwards movement which is strongly in focus because it occurs in repeated steps. This metaphor is supposed to demonstrate the aptness of normal, which in itself reflects a polarity, to collocate with perfectly, whose semantic essence is polarity, as we have noted above.

Next, consider one example with understandable in collocation with perfectly:

(11) "I'm sorry, Mrs Minks", Arlene said in a tone so low you could hardly hear it. My mother constituted herself the voice of all of us. "It's perfectly understandable, Arlene", my mother said in a friendly way. "I suppose you were all playing and forgot." (BC)

Arlene's apology is an admission that there is something improper about her behaviour: my behaviour was not what it should have is been, but I hope you'll find it excusable. This plea for excuse, we may say, if we visualize it spatially, an attempt to arrest the downward movement of the concept 'not proper/not what I should have done' and cause it to be reversed such that it can stop on the "positive" side of the dividing-line, i.e. the plea is tantamount to a desire for not proper to change into not not proper, or rather it is tantamount with a desire to change 'what you might not find excusable' to 'definitely excusable'. We can here make the interesting observation that the uncertainty as to the excusability of the behaviour in question requires an emphasizer (definitely) at this early stage of the semantic process that yields the collocation perfectly understandable. Perfectly later embodies this semantic element, and understandable replaces 'inexcusable'. Understandable, like normal, is very well suited to accompany the polar word perfectly, because these words have inherent in them a distinct borderline between not normal and (not not) normal and not understandable and (not not) understandable. In the case of normal, we have seen that this borderline may be given a mathematical precision. In the case of understandable, this polarity will be understood if we picture understandable to mark the border-line between perception and conception. There is a punctual rather than gradual transition between these mental processes because there is a definite point at which

conception takes place.

Both normal and understandable are natural collocates of perfectly as their starting-points are, as it were, always below the dividing-line. Put somewhat differently, they are both used in an assuring function: 'it's (not not) normal/understandable' is always directed to someone who fears that something is not normal/understandable. The function of perfectly will be clearly illustrated, I think, if we ascribe to this adverb the function of reassurance, i.e. assurance inherent in normal and understandable need support or repetition, particularly in cases where the "downward pull" is repetitious, as in the two examples with perfectly normal. Such a conspicuousness of the negative side of the dividing-line between positive and negative is, quite interestingly, expressed in the qualifier timid in the illustrating example of reassurance in W:

"a timid man in constant need of reassurance".

The following is the range of perfectly. ("Range" is the technical term for all the collocates of a certain word in a certain corpus).

The collocates are not ranked according to frequency here, but are listed alphabetically. Only adjectives are listed here.

Perfectly: adequate (6) all right (3) amiable (8) appropriate aware calm (4) capable confident (6) content (3) cordial and nice correct exact fair genuine good happy (6) healthy (4) legal legitimate natural (5) normal (8) obvious (5) okay (2) permissible plain right (3) safe (6) sensible serene serious (3) silent sound (4) splendid staunch still (9) straightforward sure symmetrical unthinkable understandable (8) willing

Quite: (only those adjectives which also occur in the range of perfectly are listed) adequate (2) natural (10) obvious right (60) still (12).

It is noteworthy that there is an overlap only in four heads: natural, obvious, right and still. Thus, it is fairly correct to assert that quite and perfectly are, in spite of their obvious relationship, in the function to negate a negation, quite distinct in their semantic nature, and that both adverbs preserve their lexical integrity. What is particularly striking about the range of perfectly is that conspicuously many of the heads seem to contain a negative concept. This is in keeping with the claim we have made above as to the connection between repeated crossings of the dividing-line between a concept and its negative counterpart and the degree of dynamicalness the word expresses. We have argued thus far that perfectly is a highly dynamic word and we will return to this below in our continued discussion. The following definitions in W support our contention that the heads of perfectly seem to contain a kind of negation: calm: "marked by quiet unruffled freedom from agitation" / "without rough motion, storminess, or agitated activity"; content: "not disposed to complain or grumble"; natural: "not supernatural, marvellous, or miraculous"/easy freedom from the artificial, stiff, constrained,

or formal"; safe: "can imply that one has run a risk without incurring harm or damage"/"free from harm, injury, or risk"; silent: "free from sound or noise"/"making no sound or noise"/"perfectly quiet" (note especially this gloss that seems to imply that perfectly is inherent in silent"); sound: "free from error or fallacy"; still: "devoid of or abstaining from motion"/"having no effervescence (ab. wine)": We add to this list normal, which has already been discussed: "not deviating from an established norm".

In order to compare quite and perfectly, let us consider the shared head still. First of all it must be pointed out that still is more significant for perfectly than for quite in view of the fact that the sum total of heads in my material for quite is 675 and for perfectly 75. This is in keeping with our claim that perfectly is more dynamical than quite. An aspect of the fact that still contains a negation is that it is punctual and definite rather than elastic and indefinite, i.e. at the moment when the concept 'move' crosses the dividing-line between 'move' and its negated counterpart 'not move', still has validity. This applies to most heads of perfectly, an implication of the fact that the heads contain a negative concept. This is also reflected in the notion 'sufficiency' which is contained in most heads of perfectly. Note, for example, the following glosses taken from W: capable: "having sufficient power, prowess, intelligence, resources, strength, or other needed attributes to perform or accomplish"; "possessed of or marked by adequate resourcefulness"; adequate itself occurs three times with perfectly and is glossed like this: "narrowly or barely sufficient/no more than satisfactory"/"may suggest barely meeting a requirement, with nothing excessive or ample remaining" (my italics UB). This is an indication of adequate being placed near the fiery zone near the dividing-line and thus being readily collocable with perfectly. Still, being punctual and non-elastic, is not readily accessible to grading: although very still may be acceptable, ?extremely still is not "grammatical" or semantically well-formed. However, even words which are strictly non-gradable have a certain elasticity, i.e. they have a feature 'more or less' attached to them. This is evident in such a collocation as completely empty. Empty, logically, cannot imply 'less than empty', but in the minds of language users the concept expressed by empty has a certain elasticity. In spite of the fact that quite readily collocates with words expressing gradable concepts such as good, this adverb, negating a negation, expresses definiteness/absoluteness. Quite good expresses surprise or unexpectedness and its meaning is not good rather than moderately good. However-- and this is vital for the entire discussion in this paper--perfectly, because of its dynamicalness and function to "lift" up a highly conspicuous negative concept just above our dividing-line, as has been demonstrated above, has a higher degree of definiteness/absoluteness than quite, as the following two examples show:

(12) We were quite still but not still enough

(13) ?? We were perfectly still but not still enough.

(I am grateful to Peter Fries for suggesting to me these examples)

This is also in keeping with what we have just established: there is a notion of 'sufficiency' built-in in most heads of perfectly.

The difference in degree which is usually ascribed to quite and perfectly is, we will argue here, based entirely on contextual differences: although both adverbs have the capacity to "lift" up a negated concept above our dividing-line, the negative side of this line is much more strongly in focus in the case of perfectly than in the case of quite. Compare the following two examples with each other:

(14) Had he not better be perfectly still? (Murdoch)

A man is sinking down in a bog and is fighting to come on firm ground again, kicking and thrashing his arms about frantically in this attempt. As he sees that this is of no avail, he asks himself the above question. It will be readily seen that there is a clear similarity between this sentence and the other examples with perfectly which we have discussed above: the negative side is heavily biased, not still, which can, because of the built-in negative in still, be analyzed into not not move. Because of the bias or conspicuousness that is attached to this element, an emphatic superimposed NOT is required to assure not not not move a safe place above the dividing-line.

The situation in the following example is the following: rescue has arrived to the man fighting for his life in the bog; he has taken his own advice and has stopped kicking about wildly. The man who has come to his rescue says to the man in the bog:

(15) Keep quite still! (Murdoch)

The "deep structure" of this utterance may be said to be: I cannot see that you are moving violently, but as this is a very likely thing to do for a person in your situation, I tell you to keep definitely still. Note that whereas there was an explicit contrast in (14), i.e. the man was moving about frantically, the same contrast is implicit in (15) ("I can't see that you're moving violently, but as this is a likely thing to do for you in this situation, I ask you to keep still").

Compare now the following two examples:

(16) She leaned forward and kissed him on the cheek. She had been aiming at his mouth, but missed it in the darkness. She tried again and found her objective. Rainborough remained quite still. There was a raging confusion inside his head. The bitch, a voice was saying, the bitch. He leaned towards her and began to kiss her brutally and indiscriminately upon her back and neck. (Murdoch)

(17) Everyone stood there paralyzed. Then they began to look at each other guiltily. Annette, who had been standing perfectly still on the spot where Mischa had left her, her hand raised to her mouth, was suddenly galvanized into activity. She spun round madly towards Rosa. "You did that on purpose!" she screamed. (Murdoch)

In both examples there is a clear contrast between still and not still. But this contrast is much sharper in (17) than in (16). The expression of the movement which the unnatural stillness is transformed into is italicized in both examples. There is in (17) an evasive semantic quality which is hard to pinpoint, a quality which returns in most examples I have collected: a sense of an eerie ominousness, of an awed horror. This atmosphere is achieved in (17) by the paralysis everyone evinced, the guilt in their looks, the galvanized movements which follow the frozen stillness, a gesture having been interrupted ominously by this stillness, which is obviously provoked by a shock, the direct accusation. Perhaps the word which is most apt to capture this characteristic feature in examples with perfectly is dramatic: the contrast in examples with perfectly is marked by the feature 'dramatic'. This feature is obvious in examples (18) - (33); these examples will also serve as a demonstration of the conspicuousness characteristic of the "negative side of the dividing-line":

(18) Jones then recoiled his rope and threw again, this time hitting her on the back but failing to encircle her. She whirled and faced him, rearing terribly, and Ulyate, walking through the leaves, could not understand why she did not charge and obliterate him, because he wouldn't have much of a chance of getting away, in that thick growth, but she seemed just a trace uncertain; while Jones, on the other hand, appeared perfectly confident, and Ulyate decided perhaps that was the answer (BC).

Confident, being glossed in W: "characterized by freedom from fear, doubt, or worry", is rather like the other heads of perfectly in that it contains a negative, which implies that perfectly confident means NOT not not worry, which is the result of three crossings of the dividing-line. (18) can serve as a model sentence with perfectly because there is a twofold contrast: that between the confidence Jones feels and the lack thereof in the animal threatening him, and the contrast which underlies the dramatic feature and which furthermore underlies the bizarreness and incongruity which we have said above characterize examples with perfectly: the threatening animal had reason to be confident rather than Jones. Compare with this the double contrast in (2): the one between Nazi and anti-Nazi, and the one between the claims to be staunch anti-Nazis and secretly sharing Hitler's views. This contrast places hypocrisy markedly in focus.

(19) It is perfectly true that any policeman in any country can ultimately be provoked into the use of force (The Observer 1968).

True, glossed: "not false or erroneous; not inaccurate", evinces inference of a negated concept typical of the collocates of perfectly. There is an element of incongruity here in that the police are supposed to prevent violence rather than resort to it themselves.

(20) In the Hollywood unemployment office it is perfectly appropriate to read How to Be Rich while waiting for the dole. (The Observer 1968)

Appropriate, suggesting "distinctive fitness" (W), negates a negation: not not distinctive, distinctiveness being naturally opposed to non-distinctiveness, because it has an identifying function.

(21) Over here, in his tiny cage, is a chipmunk, wildly circling from floor to roof, floor to roof, in a perfectly symmetrical and repeated pattern (Life 1968).

There is an element of pitiful eeriness in the contrast between the chipmunk's life conditions in its cage and the perfect symmetricalness of its movements.

(22) A bizarre exchange, but perfectly in keeping with the odd status of the 11 U.S. soldiers being held captive by Prime Minister Norodon Sihanon of Cambodia (Life 1968).

In keeping, indicating conformity, congruity, is naturally opposed to non-conformity and incongruity. Note that the element 'bizarre' is explicit here.

(23) She seemed perfectly calm, but awfully pale and weird. (Murdoch).

The implication 'calm despite a state of shock' is obvious.

(24) Hannah stood perfectly still with her arm hanging at her sides.

(25) Hunter stood perfectly still. His face was blazing and he was struggling for breath. (Murdoch)

Here, as in (24), a person has frozen in a position of immobility as a result of a shock, of which Hunter evinces other manifest symptoms. This is a somewhat unnatural reaction on the part of Hannah to a shocking piece of news.

(26) Max said the laundry had been perfectly silent, all the machines turned off (Highmark).

A burglary is described, and there is an eerie ominousness in the continuous droning of the machines having been turned off.

(27) He rose slowly and looked into the mirror on the inside of the closet door. He barely knew himself. This was some freak, two strands of adhesive tape across his nose, like ugly roots from the mass of gauze, suddenly moist over the cheekbones. The surface, however, was perfectly white. (BC).

White, being one of the "primary" colours, implies 'not black' or 'neither black nor red'. (See Ruhl 1974). Thus perfectly white means NOT not not red.

The liquid penetrating through the bandage was, contrary to the man's fears, not red blood.

(28) I remember an anecdote the source of which I forget. It concerns a small-town minister who stages an impressive object lesson by confining a lion and a lamb together in the same cage outside his church door. Not only his parishioners, but the whole town and, ultimately, the whole country, were enormously impressed by this object lesson. One day he was visited by a delegation of would-be imitators who wanted to

know the secret. "How on earth do you manage it? What is the trick?" -- "Why", he replied. "It's perfectly simple; there is no trick involved. All you have to do is to put in a fresh lamb from time to time." (BC).

Simple, glossed as "free of implications" (W), is a natural collocate of perfectly. The dramaticalness naturally lies in the unexpected erasure of not in 'not simple' performed by the superimposition of an emphasized NOT by means of perfectly, NOT not not complicated.

The following sarcastic example is rather like (28) through its semantic tension between apparent complexity and evident simplicity:

(29) One day, to everyone's astonishment, someone drops a match in the powder keg and everything blows up. Before the dust has settled or the blood congealed, editorials, speeches, and civil-rights commissions are loud in the land, demanding to know what happened. What happened is that Negroes want to be treated like men. Negroes must be treated like men: a perfectly straightforward statement, containing only seven words. People who have mastered Kant, Hegel, Shakespeare, Marx, Freud, and the Bible find this statement utterly impenetrable (BC).

Straightforward, synonymous with simple, is glossed in W: "free from circumlocution or obscurity", thus constituting itself a natural collocate of perfectly.

A similar sarcastic note is perceptible in this example:

(30) Although he is perfectly willing to cooperate with Scotland Yard, Holmes has nothing but contempt for the intelligence and mentality of the police. (BC)

Willing is glossed in W: "not slow, lazy, or reluctant".

(31) 'So you want me to rescue the Artemis to be a play-thing for your brother? You're going to be disappointed, Miss Keepe'. -- 'My brother is a perfectly competent editor', said Rosa. (Murdoch)

Competent, meaning 'having sufficient skill' marks sufficiency, which is, as we have pointed out above, a characteristic of the collocates of perfectly. This adjective, like adequate is, as we have noted above, even registered as a synonym of sufficient in W; its resemblance with adequate is also evident from: "may imply some of the slighting suggestion of adequate" (W). This slighting suggestion is illustrated like this in W: "competent narrative or exposition, skilled but not beautiful or artistic writing such as deserves the name of literature". It is thus clear that competent, facing, as it were, the "negative" side of our dividing-line ("not literature really, but competent"), is quite suitable to "lift" up a negative concept. Hence, it is naturally collocable with perfectly. What causes the selection of perfectly in the off-putting reply to a slighting remark is probably the drastic choice of words ("a plaything for your brother"), which is the expression of a judgement of utter incompetence. This emphatic explicit

condemnation requires a word which superimposes an equally emphatic negation on the negation of competent: NOT not competent. A similar off-putting note is evident in the following example, which is, moreover, as clear a demonstration of the explicitness of contrastive ideas as (1) and (2):

(32) 'Isn't that wonderful, gentlemen? Isn't that wonderful?' -- 'I don't see anything very wonderful about it, sir,' said Mann. 'Captain Leonard's reasoning strikes me as perfectly sound.' (Amis)

The man who utters the repetitious ironic judgement obviously believes that his ironic attitude is shared by the other persons present on the occasion, but he is told that this is definitely not the case. Sound, glossed "free from error or fallacy", expresses the denunciation of a negative concept like most collocates of perfectly. There is a note of an eerie incongruity about the following example:

(33) Then he'd be perfectly cordial and nice until the next time. (Murdoch).

A woman is relating her experiences with her former husband, who had ill-treated her grossly.

(33) may seem to contradict our claim above that the heads of perfectly are as a rule non-gradable. Extremely cordial/nice is certainly grammatical. But, in this particular context, cordial and nice has no elasticity, but are rather as punctual and definite as the adjectives normal and understandable are in themselves, i.e. cordial and nice mean here not not cordial/nice, and perfectly is called for as an obligatory emphaziser, obligatory because of the wide gap between brutality expressed in ill-treated and cordial/niceness, to blow up not into NOT. A striking difference in the collocational natures of quite and perfectly is the fact that quite naturally collocates with both good and well, these collocates having 16 and 15 occurrences respectively, whereas in the case of perfectly well seems to be an even more natural collocate than for quite, having 8 occurrences; good, on the other hand, has only one occurrence. It would seem that good is not collocable with perfectly in an evaluative function, as in:

(34) The book is quite good ?? perfectly good
Quite good is here implicitly contrasted with not good, such an evaluation tending to imply a certain degree of unexpectedness. Perfectly good in (34) might be acceptable if a conspicuous explicit contrast was present in the actual context. Good occurs with perfectly in my corpus in this example:

(35) She told herself rebelliously, and with pride: "I am an American." And so she was and would remain. But she was learning that so long as she was in this country, and wore civilian dress in the club, there would always be young men who would approach her in broken English. There had been occasions when some of the more experienced had even addressed her in what might have been perfectly good Japanese. She wouldn't know. (BC)

The woman's non-familiarity with Japanese and the explicit contrast of good Japanese with broken English imply that good is non-

evaluative, i.e. the question how good? is not relevant. Good serves merely as a marker that the spoken language might have been Japanese and not any other language. Thus, good is here as punctual and non-elastic as most collocates of perfectly are. The reason why well goes naturally with perfectly seems to be that this adverb is apt to function as a marker of the validity of another concept. Consider the following examples with perfectly well:

(36) He knew perfectly well that there were no such things as fairies or spirits or malevolent non-human agents. (Murdoch)

Perfectly well does not convey any evaluation as to the quality of the knowledge but serves rather as a marker of the truth of the proposition "he knew" (NOT not know). The obviousness of such knowledge contra the extreme emotional terror which the man felt, inducing him to believe that he was surrounded by evil spirits, this terror attaching conspicuousness to the "negative" side of the dividing-line, not know, calls for the use of perfectly to "lift" up this negative concept to a safe position above the dividing-line.

It is significant that in 6 out of the 8 occurrences of well with perfectly the modified verb is know, which is not naturally modifiable by a stronger commendatory adverb, such as excellently. The function of well with a preposed perfectly as an appended marker of the validity of its head is obvious in the following example:

(37) I'm perfectly well aware of that (Swedish Television). The three occurrences of aware in the collocational range of perfectly are in keeping with the non-elasticity and punctuality which usually characterize the heads of perfectly. Aware, which is closely related with know semantically, is "marked by realization, perception, or knowledge" (W). There is a definite, precise point where the transition from non-realization, non-perception, and non-knowledge to realization etc. occurs, i.e. there is a definite dividing-line between non-realization and realization. This fact rather tends to support our discussion of a dividing-line separating "positive" and "negative" concepts. Besides the collocability of aware in itself with perfectly there are other contextual cues which justify the use of perfectly, as in:

(38) The South-African whites are perfectly aware of outside opposition. (Obs. 1968)

The white people in South-Africa, who are notorious for their staunch adherence to the apartheid policy of their country, seem, in their arrogance, to disregard criticism from abroad. This makes the concept conspicuous, which, as we have repeatedly seen, calls forth the use of perfectly. Such a conspicuousness marks the concept "not able to walk" in the following example, which is a further illustration of well functioning as a non-evaluative, "punctual" marker:

(39) 'I can't do anything with this leg' Annette added. --
'When the plaster hardens' said Miss Casement briskly, 'you'll easily be able to walk with a stick. A friend of mine had an

accident skiing, and she managed to walk perfectly well with her leg in plaster. (Murdoch)

The verb walk is not readily modifiable by means of a highly commendatory qualifier such as excellently. Perfectly well has the implication: "I superimpose NOT to 'not walk', which you think is valid". Quite well resembles perfectly well in that most of its occurrences are with know, but the sentences with quite well do not usually contain explicit contrasts. However, note the following example where well signifies standard of accomplishment and where perfectly seems to be unnatural:

(40) ...but the slicing blows with the side of his hand he could execute quite well ? perfectly well. (Highmark)

Here, it seems that excellently could be substituted for well.

The best method to get at the difference between quite and perfectly would be to consider a particularly marked divergence in collocations. Such a divergence characterizes right, which is a punctual and non-elastic word, as we cannot say very/extremely right. Right has 60 occurrences with quite, whereas it co-occurs with perfectly only three times in my corpus.

Another striking peculiarity about the collocational nature of perfectly is that perfectly different seems to be "ungrammatical". Different is a conspicuous collocate of quite, on the other hand (60 occurrences). Moreover, different is very naturally collocable with other adverbs expressing the highest degree (which perfectly does according to my categorization of adverbs of degree in Bäcklund 1973), completely having 2, entirely 4, and totally 1 occurrences in the corpus used in Bäcklund 1973. This difference as to collocational nature between quite and perfectly seems to be closely related with the fact that quite is characterized by implicit contrastiveness, whereas this contrastiveness is explicit in the case of perfectly. Normal and understandable, the two main collocates of perfectly, serve, as we have seen, to batter down explicitly expressed fears that something might not be normal or understandable, i.e. these two adjectives occur in situations characterized by explicit contrastiveness. Right, on the other hand, implies contrastiveness rather than expresses it. It is used as a response to a statement or a kind of act with the implication: "I concede it is right rather than not right, which judgement would have been the other alternative". Thus, there is an implicit contrastiveness about right, which makes it naturally collocable with quite. As for different, it implies separateness or non-conformity, whereas the very essence of the heads of perfectly is to express conformity, or, as we have said above, sufficiency, for example legal, legitimate, normal, and understandable. The function of perfectly is then: "I assure you there is conformity, although you express conspicuously a fear that this is not so". There is an implicit contrastiveness about different: "you may think it is not different, but I assure you it is".

The discussion in this paper has the implication that a lexical item has a semantic integrity and that it shows resistance to

of perfectly in that it clearly marks sufficiency: "having sufficient power, prowess, intelligence, strength or other needed attributes to perform a thing (my italics/UB)" (W). Significantly, another explication of its meaning occurring in W contains the adjective adequate, which is, as we have seen, a collocate of perfectly: "Often it suggests powers of adjustment, adaptability, or resourcefulness adequate for treating satisfactorily whatever matter that is under consideration". This is a clear indication of the interdependence which usually prevails between the collocates of a lexical item, which is further support of our claim as to the unified sense of words.

Two sentences with happy are the following:

(41) What Hunter needed in order to get over this uneasy feeling was a word from Rosa -- and this was just what was not forthcoming. If Rosa had told him that his samples were foolish, he would have been perfectly happy. (Murdoch)

Happy here means something like 'satisfied' and is thus an indication of a limit implying sufficiency. The strong emphasis on the "negative" side of the dividing-line is here clearly expressed in the impossibility of getting the word he needed from Rosa: "and this was just what was not forthcoming".

(41) Then she decided, someone else would do better, so you got divorced, and you're all perfectly happy drinking coffee together, telling stories, all friends and everything just too cosy. (Lessing)

There is a clear note of sarcasm in this sentence and the explicit contrastiveness of perfectly lies in the suggested idea 'you should not really be happy'.

In the third example with happy, happy is, again, synonymous with satisfied.

Finally, consider an example, where the signification of a limit is particularly evident:

(42) It appears that the dominant tendency of Mann's early tales, however pictorial or even picturesque the surface, is already toward the symbolic, the emblematic, the expressionistic. In a certain perfectly definite way, the method and the theme of his stories are one and the same. (BC)

Definite, like most of the other collocates of perfectly, is shown in a gloss given by W to contain a negative: "marked by the absence of the ambiguous, obscure, doubtful, or tentative and by certain clear statement or expression by means of flat positive assertion, careful statement of limitation, or accepted finished form". Note particularly the occurrences of the words flat and limitation in this gloss, clearly pointing to the absoluteness of the concept expressed by definite. The explicit contrast in (42) lies in the fact that it is unusual for the method and the theme of literary works to be identical.

Capable, which is near-synonymous with able, is one of many adjectives in the collocational range of perfectly with the

paraphrase, two points which Ruhl has eloquently argued for. Rather than assert that perfectly in a certain sentence expresses totality and in others is equivalent with quite, which, as argued in Bäcklund 1973, expresses moderate degree, it is more correct to say that it has a unified sense, which is evident in our claim that it always implies an explicit contrastiveness and that all its collocates have references to the notion of a limit, to 'sufficiency'. This would mean that perfectly with collocates where it seems to have diversified meanings (as for example with normal, where perfectly seems to be paraphraseable with fully, and with happy (three occurrences), where perfectly seems to be paraphraseable by very) really has the same meaning. Furthermore, as we have noted, its synonymousness with quite (noted in W) is rather suspect, and at least remote, as is evident in the diversity of the collocational characters of these two adverbs of degree. Moreover, the unified semantic character of perfectly which I argue for here would constitute a reason for regarding it to be monosemic rather than polysemic, which is another aspect of Charles Ruhl's ecological-holistic views. Such a view holds that language is much more systematic and ordered than even TG assumes, and puts emphasis on the fact that language is not a self-contained entity, i.e. it does not function in a vacuum cut off from human mental capabilities. Such a holistic view argues that a word has a more general and abstract, and unified sense than the method of conscious thought and conscious introspection ascribe to it. For example, the discrete senses attributed to perfect in a perfect wife ('excellent') and a perfect stranger ('complete') are due to the differentiation in the semantic structure of the modified nouns rather than to perfect being polysemic.

The mere establishment of what collocates a lexical item takes is not sufficient, as we have demonstrated in this paper, to explain the meaning of this item, but each sentence must be analyzed in a broader perspective. Let me finish this discussion by considering two additional collocates, capable and happy. Both these adjectives are qualifiable by means of extremely, but this does not apply to the examples with perfectly capable/happy.

Interestingly, perfectly capable appears in the same context in all six occurrences of capable as a collocate of perfectly in my corpus:

(41) I'm perfectly capable of taking care of myself, thank you.
(Swedish TV)

the only variation being substitution of "looking after myself" for "taking care of myself". This type of sentence is a decline of an offer of help, and thus, here again the off-putting note which we have found in examples with perfectly appears again. The strongly emphasized "negative" side of our dividing-line is here constituted by the inherent assumption in such an offer of help that the person to whom this offer is extended is in need of help, but the reply to this offer supplies the information with great emphasis that this is not so. Capable is an interesting collocate

suffix -able or -ible (e.g. understandable, sensible). This is in keeping with the characteristics of the heads of perfectly to indicate the notion 'sufficiency'. For example, understandable expresses possibility of understanding pointing to the threshold of the conceptual process being just overcome.

The fact that sentences with adjectives which are elsewhere modifiable by extremely contain contexts where this gradability is no longer valid stresses the fact that the investigation of a broader context of collocations is necessary to establish the unified sense of a word. This is a further extension of the principal claim of this paper: that collocational analyses tend to support Ruhl's and Bolinger's views as to the semantic integrity of lexical items.

There has been in my discussion a seeming contradiction in that I argued that the heads of perfectly do not as a rule contain the feature 'intense'. This is of course associated with the punctuality which is another characteristic of the heads of perfectly and which is displayed syntactically in the fact that the heads of perfectly, as a rule, do not allow modification by means of very or extremely. To assert that lexical items have a semantic integrity and that they usually have a unified sense would seem to imply in the case of perfectly that this adverb has connection with the noun perfection in that it would refer to a condition that cannot or need not be gone beyond. This sense 'perfection' has indeed a reflection in the collocational behaviour of perfectly in that the heads denote 'extremes'. The following collocational characteristics are associated with the "cannot" part of the definition of perfection referred to above:

- (43) I was perfectly stunned
- (44) *I was perfectly surprised
- (45) It was perfectly awful (terrible, frightful, horrible)
- (46) *It was perfectly bad (disagreeable, unpleasant)
- (47) It was perfectly useless to work with
- (48) *It was perfectly hard to work with
- (49) She is perfectly childish
- (50) *She is perfectly immature
- (51) It is perfectly impenetrable
- (52) *It is perfectly opaque
- (53) I was perfectly furious
- (54) *I was perfectly angry
- (55) She is perfectly beautiful
- (56) *She is perfectly pretty
- (57) It is perfectly unfathomable
- (58) *It is perfectly deep
- (59) It is perfectly heavenly
- (60) *It is perfectly pleasant

It will be readily seen that the non-starred examples here are less likely to be modified by very and extremely than the examples which are judged to be "ungrammatical". It is noteworthy that in this category (the "cannot" part of my definition) both

positive (e.g. beautiful) and negative (e.g. impenetrable) occur. What is striking is that there is no instance in my corpus of any of these 'extreme' adjectives. Hence, we might conclude that the "need not" part of the definition of perfection referred to above is more closely tied to the essential semantic nature of perfectly. This is also perfectly in keeping with my contention that the heads of perfectly have in common that they mark sufficiency. The following would be (concocted) instances of the "need not" definition:

- (61) It is perfectly good -- why do you need anything better?
- (62) Jack is perfectly all right. He is a regular fellow.
- (63) This article is perfectly new.
- (64) It is perfectly clear that she was responsible.
- (65) This food is perfectly edible. You don't need anything finer.
- (66) The ground is perfectly solid. No need to fear walking on it.
- (67) The gelatine is perfectly hard. We can eat it now.
- (68) The grapes are perfectly soft. We can crush them now.

We note that although the heads in this category are normally modifiable by very or extremely, they are not in these contexts, precisely because these are explicitly contrastive, which is the main semantic function of perfectly. It is also noteworthy that in both categories (both in the "cannot" and the "need not" part), there occur forms with the suffix -able (-ible): (57) and (65). Note, however, that disagreeable in (45) is ruled out, because it denotes an "elastic", gradable concept. The two main heads of perfectly -- normal and understandable -- belong to this "need not" category, which tallies with my contention that this category is the one most closely linked with the semantic essence of perfectly. It is not a case of an extreme but, in keeping with the contrastiveness of perfectly, of dividing the universe into two parts and saying "you either meet the specification or you don't -- if you do, you are entitled to perfectly" (see above concerning the intrinsic contrastiveness of normal and understandable). Since this category involves meeting specifications, it is normal here only to have the "good" meanings (hence there are mostly "positive" heads in the range of perfectly). One says perfectly good (although, as we have noted above, this is rare) not *perfectly bad, perfectly acceptable, not *perfectly unacceptable, perfectly easy to understand, not *perfectly difficult to understand. It would be possible to rig a context in which the "meeting criterion" could have a bad sense, but it would be unusual -- and in a way, this too would be a "good sense because it would have to refer to a desired end. Also, among the "ungrammatical" examples of the first set ((43) - (60)), by overlaying prosodic markers one might induce an 'extreme' sense and justify perfectly. Thus, there is no precise and absolute selection of adjectives and adverbs to which perfectly applies, but the trend is clear.

For the same reason that 'extreme' or 'meeting criterion' are

required, a comparative is not acceptable, though it is sometimes with quite:

- (69) I am quite better, thank you
- (70)*I am perfectly better, thank you
- (71) It is quite inferior
- (72)*It is perfectly inferior

Because of the link between perfection and perfectly, superlatives are also ruled out:

- (73) It is quite the best (newest etc.)
- (74)*It is perfectly the best (newest etc.)

Because of its link with perfection, perfectly would here introduce an element of redundancy.

It is interesting and instructive to compare the adjective perfect in combination with nouns having a descriptive sense (epithets) that have the 'extreme' sense (this tallies with the fact that perfectly is combinable with descriptive adjectives and adverbs with the 'extreme' sense).

The sentences (43) - (60) seem to contradict my assertion that the chief function of the heads of perfectly is to "lift" up a negated concept, sharply in focus, to a position just above the dividing-line between non-negated and negated concepts. However, sentences (43) - (60) are likely to occur in contexts where such concepts as 'not impenetrable' and 'not beautiful' are sharply in focus. This sheds light on a holistic-ecological principle (see Ruhl): language should always be examined in its natural context. It should never be allowed to be regarded, as Transformational Grammar unfortunately has tried to teach us to do, as a self-contained psychic entity. This brings me to my conclusive illustrative example: Bolinger (Degree Words, p. 154) points out that "he was a perfect gentleman" can be used in two different situations: either in a situation where it is inferred to mean: 'he was at the extreme of gentlemanliness' or in a different situation where human experience of the world justifies the inference: 'he behaved properly', i.e., all he needed to be to meet the criterion of proper behaviour. The context here would suggest that he was not expected at all to behave like a gentleman. My use of the verb infer would imply that neither the "cannot" nor the "need not" category of the definition of perfection actually belongs to the linguistic meaning of perfect(ly). Ruhl (1974 and elsewhere) has convincingly demonstrated that the many senses attributed to the verb take in the dictionaries is a result of the lexicographers erroneously referring to the linguistic meaning of take extralinguistic factors which in various contexts are permitted to semantically "overload" (Bolinger's term) take such that the verb is straitjacketed into rigid, discrete senses rather than being treated in its own right: a verb with a general, unified sense, so abstract that it absolutely resists paraphrase. Likewise, perfect, perfectly, and perfection should be attributed a general, highly abstract sense. The

different senses it is given in the "cannot" and "need not" categories are, then, inferential rather than referential senses. My article thus supports Ruhl's often recurring criticism of what he calls "methods of conscious thought" and "the compositional assumption", whose axiom is that the meaning of a sentence is the sum of its parts. Rather, I side with Ruhl's central thesis that language carries less meaning than has been assumed so far.

- (75) He is a perfect idiot
- (76) She is a perfect fool
- (77) She is a perfect darling
- (78) It was a perfect fiasco
- (79) It was a perfect triumph

At first glance it would seem that perfect + nouns belongs to the first category (examples (43) - (60)). However consider:

- (80) He spoke with perfect clarity

Perfect here does not necessarily imply that his clarity was flawless -- it need only have been as clear as was required for understanding -- thus, here is found the sufficiency criterion. In accordance with our discussion above, (79) is likely to occur in a context where there is a heavy bias towards the idea 'not clear' -- or rather, 'muddled and confused in the extreme'. Then, clear is selected (this word fits in well with the majority of the heads in the range of perfectly in that it has an inherent negating function: "without obscurity or ambiguity"/W/) to "lift" up the idea 'not clear' inherent in 'muddled and confused' above the dividing-line between negated and non-negated concepts to not not clear, the superimposed not being "blown up" by perfectly to NOT. But it is true that with nouns the "literal" meaning of perfect applies: "the thing modified is valid to its highest degree. "It is a perfect fit", "this is a perfect diamond" etc., but "he spoke with perfect clarity" in the criterion sense means not 'clarity that is perfect' but 'speech that by reason of being clear has reached criterion'. It is extremely important to note that perfect in "A perfect diamond" has the same meaning as perfect in "He spoke with perfect clarity" in the criterion sense. It is the extension of the noun that makes the difference, not the meaning of the adjective.

Thus, finally, it has been shown that the claim made by Ruhl and Bolinger as to the semantic integrity of lexical items is valid for perfectly in comparison with the adjective perfect in that both are tied semantically to perfection. The difference between perfectly and quite will be too obvious to everyone to serve as a convincing illustrative pair to bring home that point with sufficient clarity. However, it is worth pointing out that perfectly and quite are far too dissimilar to be equated as synonyms. This shows that a linguist (or a lexicographer/W equates perfectly with quite) is on unsafe ground indeed when he uses paraphrase as an explanatory tool. Absolute(ly) deserves at least as much as quite to be compared

with perfect(ly).

Absolute(ly) and perfect(ly) are close in the 'extreme' cases, but in the 'meeting criterion' cases absolute(ly) imposes a meaning that is farther out away from neutrality: "absolutely solid", but not absolutely soft, absolutely fine but not absolutely good. However, as one of the points of the article was to direct attention to the inadequacy of lexicographic methods to today (W does not equate absolute(ly) with quite or perfectly) absolutely has not been treated here.

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Abbreviation

- BC Brown Corpus
- W Webster's Third New International Dictionary

THE SEMANTIC FIELD OF BREAK, CUT, AND TEAR

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The English verbs break, cut, and tear belong to the semantic field of 'division' verbs. By definition, words in a semantic field have a number of common properties. Each word in the field will also have differentiating properties, some unique, others indicating membership in other fields. This paper will present some of the common and differentiating properties of these three words. Since these verbs are complex, many interesting pieces of data must be overlooked; this study can be only a rough outline. My purpose is to show, in opposition to dictionaries, that these verbs have unified meanings. I will also show that syntactic patterns are both more complex and more regular than dictionaries or linguistic studies reveal.

We can start with the following definitions:

1. UNIT: the 'thing' which is broken, cut, or torn
2. CENTRAL POSITIONS: the intransitive subject and transitive object, plus other positions which are transformationally related to these, such as the passive subject.

Two types of syntactic patterns can then be defined:

3. PRIMARY PATTERN: the Unit occurs in one of the central positions.
4. SECONDARY PATTERN: the Unit does not and cannot occur in the central positions.

Consider first the Primary Pattern, as exemplified in sentences (1-62). (Example sentences are listed at the end of the paper; they occur in successive break, cut, and tear groups.) As these examples show, Units are both concrete and abstract; these three verbs are neutral to the concrete-abstract distinction. Note especially examples concerning 'feeling' (16-17, 48-49, 61-62). Even a concrete noun such as zipper (4) must be understood abstractly: it is not material, but functional unity, which is broken. Dictionary definitions tend to be overspecific, and thus create the impression of highly polysemic verbs. If we attribute some specific aspects of meaning to pragmatic specialization, we can attribute a more general meaning to each verb. A verb-noun phrase combination can be pragmatically specialized in several ways. With nose in (35) it is not the flesh which is cut, but the sense or feeling. In (38), it is the deck which is cut, not the individual cards. The extent of a break, cut, or tear must also be pragmatically specialized by the context. Additional primary examples (63-71) include 'instrumental' with-phrases.

In addition to the Unit in a Central Position, the context of a division verb can include various adjuncts that relate closely

to the verb. Such an adjunct indicates a 'result'. Primary adjuncts include prepositional phrases with into (72-88) or, as variants of into, in or to (89-103); the object of the preposition indicates 'pieces'. Another adjunct (adverb or intransitive preposition) is up (104-118), in its 'intensive', not 'directional', sense; note the combination up into (114). There is also the adjectival adjunct apart (119-30); note the combinations apart in (122) and apart into (129-30).

The Primary Pattern is the one usually cited when *break*, *cut*, or *tear* are used in linguistic examples; the Secondary Pattern has been ignored, and is dispersed in the dictionaries in many unrelated definitions. In the Secondary Pattern, the Central Positions can be filled with a Result nominal. The 'pieces' that were in the primary adjunct appear in the Central Positions in (131-47). Two specific result expressions are hole in (148-159) and one's way (160-172). The Unit may occur in an adjunct as in the ice (148), or it may be completely absent, inferable only from context. Often it may be an understood '(present) state', as in (162). Since the Unit is the most immediate semantic context for these verbs, its absence has probably been the reason why they have been analyzed as polysemic. The Unit is absent because it is rhetorically unnecessary, being either predictable or semantically empty. Thus these verbs have developed syntactic patterns in which the Unit is omitted; the Result acquires syntactic prominence in the Central Positions.

Secondary adjuncts are those which have 'directional' meaning, both concretely and abstractly. The accompanying table lists those which occur in the data; others, and other combinations, are also possible. Sentences (173-183) illustrate additional result-expressions in the central positions. Sentences (184-203) show variations of 'pieces': stick in (184) is a piece from a previously existing Unit. Examples (184-268) illustrate some of the most frequent adjuncts: from and away (184-205), off and out, (206-24), in(to) and through (225-47), and free and loose (248-268). The latter two are distinctive secondary adjectives, in contrast to primary apart. Note that into occurs in both primary and secondary patterns; here its object is the resulting 'state' or 'place'. Division words are change-of-state words; while the Unit represents the original state, the Result represents the final state. If the understood Unit is a 'position' in a 'place' (again, understood both concretely and abstractly), an object such as way may represent a change of location, with the adjunct indicating the new place. In addition, since the adjunct gives additional information about the result, a result nominal need not occur, as in (225), where wolves is neither a Unit nor a Result; thus, the intransitive subject position is semantically ambiguous. Additional ellipsis occurs with the uses of break in (230-31) and cut in (238) (there is no comparable tear in), where to the trade can be added in (231) and to the conversation in (230, 238). Note that sentence (232) can be related to the one's way-sentences (160-72) by inserting my way as the verbal object.

Since secondary adjuncts have directional senses and the secondary pattern can thus indicate change of position, it is not surprising that break, cut, and tear can appear to have movement senses, as in (269-286). However, the verbs themselves indicate only that the unity of something at a previous position has been interrupted; it is the complete context, the directional adjuncts plus the inference that positions are changed by movement, that creates the sense of movement. We get an impression from the tear examples (281-286), to be reinforced by later data, that tear has a more intense meaning than break or cut, and thus implies faster movement.

The primary and secondary patterns do not account for all the possible examples; there are many borderline cases, only some of which can be noted here. One borderline pattern includes the adjunct open (287-297). In some cases (287-88, 292-94, 295) the object undergoes the division indicated by the verb, and thus is a primary pattern; note the rocks of (287) and the watermelons of (292). But in the cases of doors (289, 297), door is not what is divided, but, instead, the position it occupies; a similar point can be made about the doors of the cages in (296). Also, crack (290) is obviously a result and possibilities (291) possibly one too, so these sentences exemplify the secondary pattern.

Another borderline case blends the two patterns, as in (298-309). The adjuncts exemplify the secondary pattern, but central positions are filled by Units, exemplifying the primary pattern. A special feature of this blend pattern is that the nominal in the adjunct is either a part of or attached to the Unit; note eye and axehead in (299) and coat and shoulders (302). In some cases, a prepositional object is omitted because it is identical to the already mentioned Unit; note (301, 308). I have been somewhat mystified by this pattern, because in my data base of 6,000 break sentences (plus many others not collected because of duplication), I have found no examples like break something from one end to the other, which would parallel cut (306) and tear (309); the only examples of from to with break are clear secondary patterns, usually movement examples. Although the parallel to cut and tear seems grammatical to me, it has proved very hard to find.

We can consider now some differences exhibited by the three verbs. Off, a secondary adjunct, can also be a primary adjunct, occurring with both break and cut (310-21), but it is far more frequent with break; I have no examples with tear. Down can also be a primary adjunct, but it appears limited to occurring with break when the Unit indicates some functional, organic, or psychological unity (322-27). The cut examples (328-29) may also be primary, but down seems to have a slight directional sense, as it does also when we talk about cutting down trees or tearing down buildings. In the break sentences, off and down lose their directional sense and become more abstract; break is more diffuse and unspecified in meaning than cut or tear and has more abstract Units than either of the other verbs.

One of cut's specifications is a bias toward 'lessening'. The examples with the primary adjunct short (330-36) show cut

(333-36) in a very frequent use; although break can also appear with short (330-32), it is infrequent. Note combinations with primary off (332, 336). Examples (337-46) show various ways in which cut indicates lessening; both primary (337) and secondary (339) patterns are represented, as well as borderline (344). Down occurs frequently (341-45), and out (345) and back (346) are also quite common. There may be a slight parallelism in the break examples (347-49); but these sentences, with adjunct to, might be more directly relatable to the cut examples (350-52). These last examples show another unique attribute of cut: it can indicate a 'precise' division.

Cut and tear can also occur with at as an adjunct, a pattern impossible for break (353-62). At implies a repeated action; John Morreall suggests (conversation) that cut and tear imply an ongoing, progressive division, while break does not. This is a secondary pattern, the Unit occurring as the object of the adjunct; note the combinations with loose (356) and away (357).

Tear is more intense than the other two verbs, occurring with the primary adjunct asunder (363-66); break and cut can also occur with asunder, but only marginally. Tear also occurs with the secondary adjunct aside (367-68) and the primary adjunct between (369), the latter indicating an expression of agency. Cut and break seem to be improbable with both, between occurring with them only as a locational expression in movements. The role of aside and between can be clarified by reference to physical tearings, which involve agencies operating in opposition: when tearing a piece of paper, for example, one's hands move in opposite directions. Aside and between seem to imply such opposing forces and movements, even in abstract contexts.

One major syntactic difference is that break and tear are basically intransitive, while cut is transitive. Cut occurs as an intransitive only in sentences like (370), in which an agent is implied even if not expressed; but break and tear can occur intransitively without any sense of agency. Cut can also appear in pseudo-intransitive sentences, in which the subject is an agent and the Unit or Result is absent; compare break in (225). Sentences (371-76) are other pseudo-intransitives of break and cut (I have no tear examples, and they may be impossible); I have supplied the missing Units in brackets. Note combinations with primary off (372-73). Cut implies two nominals, an agent and a Unit; break implies only a Unit, with the agent optional. Ellipsis thus is more difficult, more dependent on context, with break than with cut; examples with cut are much more frequent and easier to understand.

A full analysis of these words would include more adjuncts and more syntactic complexity; but a full delineation of all the syntactic possibilities will strengthen the claim that these verbs each have a unified meaning. Of course, a full analysis will also include other division words and serve to demonstrate why most speakers assume, without the aid of any obvious compositional analysis, that shatter is a break-type verb, slice a cut-type, and rip a tear-type.

PRIMARY ADJUNCTS

into 72-88
in 89-91, 94-96, 99-100
to 92-93, 97-98, 101-03
up 104-13, 115-18 up into 114
apart 119-21, 123-28 apart in 122 apart into 129-30
off 310-21, 372-73 down 322-27
short 330-36 asunder 363-66

SECONDARY ADJUNCTS

off 313-33, 136, 142, 145, 169, 206-07, 213-14, 219-20
off from 208, 215, 221 off through 272
from 134, 137, 143-44, 184-187, 192-95, 199-202, 270-71, 339
from into 164 from to 178, 277
away 135, 138, 188-89, 196-97, 203
away from 139, 146, 190-91, 198, 204-05, 279 away at 357
out 140, 150, 168, 209-10, 216, 222
out from 141, 212, 218 out of 147, 155 out to 211, 217, 223-24, 284
through 148-49, 154, 160, 165-66, 171, 173, 232-33, 239-41, 245-47
through from 161 through to 234, 276 through into 242
through onto 269
into 151, 162, 176, 179, 225-29, 235-37, 243-44, 273
in 152, 156-59, 175, 183, 230-31, 238
on 153 past 163
across 167, 181, 285 to 177
down 180 down to 282
over 166 over to 275
up 279 up toward 182
under 280 about 281
round 283 after 286
at 353-55, 358-62 aside 367-68
free 248, 255, 262 free from 170, 250, 257, 264 free of 249, 256, 263
free into 251, 265
loose 252-53, 258-59, 266-67 loose from 254, 261, 268 loose of 260
loose at 356
back over 278

BORDERLINE

open 287-97 through 298-300, 302-03
across 301, 304, 308 from to 305-06, 309
down 307, 328-29, 341 down to 342 down from 343 down from to 344
below 340 out 345
to 347-52 back to 346

1. ...a hailstorm that broke every window on the north side of the Palace... (Fawn M. Brodie)
2. She hesitated, picked up a dry twig and broke it noisily. (Edith Summers Kelley)
3. It was he who had broken the vase on the mantelpiece... (John Cheever)
4. After a moment she hangs the dress up again, and runs down the zipper so roughly that it breaks. (Joyce Carol Oates)
5. Mooney would break the sweet potatoes... (John Ehle)
6. It didn't break the corduroy. (Herbert Gold)
7. "I broke those balloons every damn time." (Jesse Bier)
8. Then the scab broke and the top of her foot was wet and stinging. (Sylvia Wilkinson)
9. In the east, I see, the clouds are breaking. (James J. Kilpatrick)
10. Pounding, drumming, waves broke on a shore. (Ray Bradbury)
11. The bushes and dunes broke the wind. (T. E. Lawrence)
12. At the proper moment the vacuum is broken and the sheet is dropped. (George J. Mills)
13. ...the shadows have turned to darkness -- broken by the sparks of the fire beetles... (Janet Siskind)
14. ...Billy Hammond, who neither looked up nor broke the sad thin whistling. (Wallace Stegner)
15. A splash broke the silence. (Inglis Fletcher)
16. "...if he is tired or especially upset, he may need an outside influence to break the hysteria or pain." (Suzanne Massie)
17. "You won't break his patience or his control or his spirit; but you may break his health." (Dorothy L. Sayers)
18. Now they broke the horses, broke their spirit. (Hal Borland)
19. The Watergate indictments had not broken the conspiracy. (Cari Bernstein & Bob Woodward)
20. ...he had broken his journey to America for a day... (Ved Mehta)
21. Breaking the routine was pleasant... (Gaylord Staveley)
22. How, then, is man to break his patterns of guilt, aggression, and fear? (Lewis M. Greenberg & Warner B. Sizemore)
23. We broke a promise to the country... (Lucian K. Truscott IV)
24. In critical epochs this consensus is broken by skeptical writings... (J. B. Schneewind)
25. It is not the link between sex and love that needs to be broken... (Richard Wasserstrom)
26. It is at this point also where the nature of man gives up in defeat or breaks its own boundaries. (Paolo Soleri)
27. I found later that he cut his own hair... (Marjorie Kinnan Rawlings)
28. Then one by one the guests stopped cutting their meat... (Evan S. Conneil, Jr.)
29. ...the hay was cut and stored... (John Steinbeck)
30. He cut the rope then... (Ernest Hemingway)
31. "And who will cut these chains?" (George MacDonald Fraser)
32. The telephone lines of the Residency...were cut. (Ladislav Farago)
33. The berry vines cut her face... (John Steinbeck)
34. But it [=bullhead fish] becomes insensitive to taste and will not respond in this way if a nerve serving the skin buds is cut. (Arthur D. Hasler & James A. Larsen)
35. There was a good crystal frost in the air; it cut the nose and made the lungs blaze like a Christmas tree inside... (Ray Bradbury)
36. His cheek bones were high and wide, and strong deep lines cut his cheeks... (John Steinbeck)
37. The bridge had to be cut... (Theodore H. White)
38. Hood stayed in the doorway, watching Brodie cut the cards again. (Paul Theroux)
39. Whenever possible, oxen were used to cut sod... (Roger Welsch)
40. It [=fin] cut the water like a gigantic and keen projectile. (Stephen Crane)
41. ...silt from the Rio Tocuyo muddies the clear blue of the Caribbean, cut by a speedboat's wake. (picture caption, National Geographic)
42. He felt the start of a current that cut his breath for a moment... (Ayn Rand)
43. ...her scream cut the voices of the crowd... (Ayn Rand)
44. Next day, cutting a bracing winter breeze, we pushed the first commercial cargo into the Tulsa Port of Catoosa... (Robert Paul Jordan)
45. A woman's long scream cut the night... (William Sansom)

46. The stoves also have a hamper that seals off the right side of the firebox and greatly cuts the circulation of heat. (Eliot Wiggenton)
47. ...the welcome burst of fresh air which cut the heavy stuffiness of the room... (Theodore H. White)
48. He wondered why he did not feel some keen agony of fear cutting his sense like a knife. (Stephen Crane)
49. The father's pleasure was cut by his wife's stern consistency... (Patrick White)
50. "Then all our communications between Kunming and Chungking will be cut, too." (Theodore H. White)
51. She cut all her ties at home... (Sally Carrighar)
52. He tried to roll his own cigarettes; but tore the paper and spilled the tobacco... (Elizabeth Taylor)
53. Her fingers clutched at her throat. They tore the pearl collar. (Ross Macdonald)
54. He made as if to tear his hair... (Joseph Conrad)
55. His wrists were terribly torn by his manacles... (George MacDonald Fraser)
56. "I tore a few ligaments falling down the escalator in the dark..." (William P. E. Graves)
57. "The [paintbrush] hairs are long and steady and very fine; they won't tear the gold." (Peter T. White)
58. Here, growling tractors tear the earth. (William H. Gass)
59. [Flooding:] The tree moved and tore the bank. (John Steinbeck)
60. Wherever the loudest racket tore the air... (Cyrus Colter)
61. ...it tore her heart to think instead of the poor stout girl in her thirties... (Flannery O'Connor)
62. Our break tore our habits; it left loose nerve ends. (H. E. Francis)
63. ...I could spring like a chamois from rock to rock, break a fenceraill with my head... (John Barth)
64. Unless he could break at least two taboos with one act, he wasn't interested at all. (Erica Jong)
65. In the midst of a clinch he broke the lock with a quick, lithe movement... (Jack London)
66. "At last Mahon and I had to crawl forward and cut the rope with an ax." (Joseph Conrad)
67. The road was cut with furrows where dust had slid and settled back into the wheel tracks. (John Steinbeck)
68. He is offered raw alcohol cut with branch water... (Wallace Stegner)
69. Wilson, tearing a slab of meat with his teeth, sighed with contentment. (John Steinbeck)
70. "Your bodies will be broken and your hearts torn with anguish." (James A. Michener)
71. In a darkness torn with flares and shell bursts, they were starting the long journey to the crest of some nameless ridge. (Robert Travers)
72. There are large water holes, thin ice which had been broken into pieces by the wind yesterday. (John Dos Passos)
73. ...coal from the continuous miner is fed to a crusher that breaks it into chunks... (Edmund Fattermayer)
74. The mist lifted, broke into drifting patches... (Joseph Conrad)
75. ...the river suddenly breaks into a number of channels... (Christopher H. Scholz)
76. ...meaning first accrued to longer passages, which were gradually condensed or broken into separate bits... (Suzanne K. Langer)
77. The act of symbolizing human experience calls for breaking an over-all continuum into fragments... (Dwight Bolinger)
78. The surface of the lake was broken into boiling foam... (Isaac Asimov)
79. Trick cut the piece of meat into two smaller pieces. (Joyce Carol Oates)
80. I've accomplished nothing in coming in to see you, unless it is to cut you into little pieces. (Colleen McCullough)
81. Their leaves, as they tossed and swung, seemed to be cutting the sky into bits. (Sally Carrighar)

82. A partition cut the shanty into two tiny rooms. (Laura Ingalls Wilder)
83. ...he loved to creep down the hidden waterways that cut the marsh into principalities... (James A. Michener)
84. The conventional view of externalized life, a rational orderly progression cut into uniform segments by the hands of a clock. (Gordon E. Bigelow)
85. ...[he] began to tear it [=dress] into several pieces. (Gay Talese)
86. He tore his mother's letter into fine fragments. (Francis Gray Patton)
87. He tore it [=cheque] into little squares. (J. F. Powers)
88. ...the scene in *The Killers*, Dumdum tearing Ole Anderson's mattress into a cloud of lint. (David Madden)
89. The ashtray broke in half. (Jon Hassler)
90. A hand on my shoulder broke the laugh in half.. (John Braine)
91. The water broke in diamond sprays about young thundering bodies. (Paul Horgan)
92. ...those trains were forever breaking to pieces... (James Agee)
93. ...the poor thing has had its parts of speech broke to smithereens. (Jean Stafford)
94. This morning he had cut her orange in quarters. (Philip Roth)
95. Birnam cut his strides in half... (Isaac Asimov)
96. A streak of sunlight from the edge of the shade cut the room in two. (John Dos Passos)
97. And then the telephone lines had been cut to pieces in the storm... (Norman Mailer)
98. The blades on that machine could cut you to ribbons. (Adrienne Rich)
99. Perhaps he felt the explosion before a piece of shrapnel tore his brain in half. (Norman Mailer)
100. And next there was a huge tent, ragged, torn in strips... (John Steinbeck)
101. "...my shirt was torn to rags." (Joseph Conrad)
102. "It would ruin my whole life and tear me all to pieces!" (Edmund Wilson)
103. ... a great bronze pall of smoke was growing, its margins torn to tattered streamers in the high wind. (Colleen McCullough)
104. Then his own ship began to break up. (Eugene Lyon)
105. Now we have a beautiful ear of wheat, but one which will never spread in the wind because the ear is too tight to break up. (Jacob Bronowski)
106. A good joke triggers instantaneous laughter, breaks up an audience... (Chris Barnett)
107. A soldier met them where the path broke up... (Norman Mailer)
108. ...the sullen heats of the torrid afternoon broke up and rolled away... (Kenneth Grahame)
109. "Mustn't break up your family." (Joyce Carol Oates)
110. Eliot breaks up the underlying pattern of his metres... (G. Rostrevor Hamilton)
111. Also [she had for supper] a leaf or two of lettuce, which she cut up daintily. (Mary E. Wilkins Freeman)
112. Then he looked down at his plate and began to cut up his meat. (Nancy Hale)
113. ...his hands were all cut up... (Jim Hall)
114. An eight-room house with one bath would be cut up into apartments... (Langston Hughes)
115. "I'll tear up all your books!" (Philip Roth)
116. The road had been torn up here... (William Styron)
117. "It tears me up, looking at him, knowing he's dying." (Nancy Mayer)
118. It was like tearing up a play into which one had put a lot of imagination and hard work. (Lawrence Durrell)
119. Most villages break apart before they reach 125 people. (Napoleon A. Chagnon)
120. ...he saw their plans...break apart like the thunder-split sky... (Truman Capote)
121. Then he straightened up and broke his palms apart... (John Updike)
122. ...the camp table broke apart in a shower of yellow splinters. (Timothy Southerly Goins)

123. Ashley Fleming's eyes were cutting apart Dana's dress. (Clive Cussler)
124. To serve, to cut apart with scissors or knife. (McCall's Cook Book)
125. ...the front of an engine cutting space apart by means of the letters TT... (Ayn Rand)
126. One almost tore his glasses apart as he twisted them in his hands. (Colin Leinster)
127. I watched as scientists experimented with sonic bursts that tear bacteria apart... (Gordon Young)
128. So on a First Day in late 1777 Patamoke Meeting was startled to find itself in the midst of a debate that would tear the church apart. (James A. Michener)
129. ...he lighted upon the photograph and sent it spinning across the room, where it tore apart -- frame, glass, and all -- into two raggedly separated pieces. (William Styron)
130. Molecules there [in the stars] are torn apart into their atomic fragments as soon as they are formed. (Richard McCray)
131. A piece of one chromosome breaks off... (Laurence H. Snyder)
132. A young man breaks off a piece of sugar cane... (Janet Siskind)
133. The garlic bread has grown cold and rather stale but they continue to eat it, breaking off bits of crust. (Joyce Carol Oates)
134. ICEBERGS, large fragments of fresh-water ice broken, or calved, from glaciers... (Eugene Walker, Collier's Encyclopedia)
135. A large segment of the flint broke away exactly as he had intended... (James A. Michener)
136. Finally he took the cheese to the dining room and used the butter knife to open the plastic wrapper and cut off a slice. (Judith Lavinsky)
137. One [man] has a homemade drum, the head secured by strips of rubber cut from an old inner tube. (Robert Hazel)
138. To clean crabs: With a sharp knife, cut away segment that folds under body from rear... (McCall's Cook Book)
139. Then you can easily cut the sections [of grapefruit] away from the tough white membrane separating them from each other. (Wilma Lord Perkins)
140. When they came home Tom took his sketching pad and cut out thirty little squares of paper. (Sue Guthridge)
141. He cut out a small piece of skin from the right shoulder... (Dorothy Johnson)
142. [Skylab descending:] Lighter pieces -- solar panels and Apollo telescope mount -- are torn off as Mylar sunshade is ripped away. (Smithsonian)
143. ...she tore a strip from her own apron... (John Steinbeck)
144. He tore a pinch from his plug of opium... (Paul Theroux)
145. And from the bone he tore off a small piece. (James A. Michener)
146. The surf boomed onto the land and tore away great chunks of sand and soil. (Peter Benchley)
147. "He [=dog] kept backing and pulling, till he tore a piece out of her skirt." (Laura Ingalls Wilder)
148. The females [=seals] can easily breaking hauling holes through weak spots in the ice... (Fred Brummer)
149. ...a fat man who had broken a hole through the stuffing of a couch... (Norman Mailer)
150. The clambers saw through the ice, break out a hole. (Robert Hager)
151. He had cut a large hole into Mason's cornucopia. (William Styron)
152. ...Jed suggested we cut a hole in the ice of King Pond for ice fishing. (Roy Hunter)
153. "He can't figure why we should be cutting holes on the roof of the ship..." (Clive Cussler)
154. We cut a hole through the ice... (Peter T. White)
155. ...one pair of Sears canvas wedgies, the kind with the little flowers and the toe hole cut out of the front. (Bernard Nietzschmann)
156. Farmer Herron's sons tore a wide hole in the dam... (John W. Miller)
157. The rockets had torn gaping holes in the sides of the cabin. (Harold Robbins)

158. ...patching the hole he tore in his raincoat... (Russell Baker)
159. ...it seemed to me that there was a big hole torn in my life... (John Cheever)
160. They forded rivers and creeks, often breaking their way through ice... (Carl Sandburg)
161. At the decisive moment she [=Cleopatra] fled with sixty ships, actually breaking her way through Antony's line from the rear... (E. M. Forster)
162. The armies moved across the sun-baked American landscape in the summer of 1863, trying to preserve the cherished past and actually breaking a way into the unpredictable future... (Bruce Catton)
163. And yet there lay between him and this fabled whiteness all the green mesh of Raintree County, a net of names and words, a costume of puritan restraints, and he must be bold like a young god who would break his way past all those. (Ross Lockridge, Jr.)
164. ...I broke my way from the ball-room into a small ante-chamber adjoining... (Edgar Allen Poe)
165. They could see the Murfreesboro road cutting its way through fields of russet sedge... (Caroline Gordon)
166. It [=a walk] started by a footpath up the Dean Burn, crossing and recrossing the stream as it cut its way over and through sandstone rocks... (K. M. Elizabeth Murray)
167. ...he knew that in that direction the Arctic Circle cut its forbidding way across the Canadian Barrens. (Jack London)
168. "Better if this stranger and I try to surprise the guard and cut our way out." (George MacDonald Fraser)
169. ...it would have taken an hour to cut one's way a hundred feet off the path. (Norman Mailer)
170. Then he drew his knife and cut his way free from the 1,200-pound carcass. (Edward Abbey)
171. But the sound of the shot and the streak of fire that tore its way through her chest forced her to live again, intensely. (Richard Wright)
172. Then he heard baying again, tore his way out to a little clearing... (William Humphrey)
173. ...a great inland sea at one time covered the whole area around about until finally it broke a passageway through the canyon... (Joseph Wood Krutch)
174. The black path snaking out from the boat to the patch of tulegrass is the waterway he broke last night. (James Tiptree, Jr.)
175. ...it was he who could travel easiest and break a first track in the untrodden snow. (Fred Bosworth)
176. The trail they had broken into the country was packed hard by later journeyers. (Jack London)
177. ...the channel of the New Basin canal was laboriously cut to the lake... (John Chase)
178. ...the Hurricane of '33 had cut an inlet from the ocean to Assawoman Bay. (John Barth)
179. ...car tires had cut smooth arcs of black into its [=snow] white... (John Updike)
180. ...this Jew leaped at him and cut a deep gash down the German's left leg. (James A. Michener)
181. ...it [=plane] cut a swift diagonal across the mountains... (Ayn Rand)
182. Pretending to hunt for seashells, she cut a zigzag path up toward the blanket. (Philip Roth)
183. The kitchen ell and the woodshed had already gone down, tearing an ugly wound in the north wall... (Eleanor Clark)
184. I broke a stick from a dead branch. (William Berge)
185. ...she fully awakened and broke from his grasp. (Judith Rossner)
186. A cry broke from Robin. (Helen McCloy)
187. ...Seurel tried to break from the limitations of Impressionist technique... (Bernard Myers)

188. High winds tore at their [=mountains] low summits, and freezing winters broke away protuberances. (James A. Michener)
189. Sharply he rapped the corked neck of the bottle against the porcelain. The neck broke cleanly away. (Harold Robbins)
190. People argued then that we could not permit Biafra to break away from Nigeria... (Howard Kahane)
191. ...having broken away from the middle class, intellectuals often found themselves no nearer to "life" than before. (Christopher Lasch)
192. He put the dish on the table and began cutting the crust from a loaf of bread. (Ellen Glasgow)
193. He was cut from the old man's will... (Sterling Hayden)
194. When we got around the bend in the drive which cut the house from sight... (Robert Penn Warren)
195. He must have been convinced that he was cutting the dead weight of deception from Herzog's soul... (Saul Bellow)
196. ...power and telephone company linemen cut away the tangle of storm-toppled poles and wires. (Bern Keating)
197. ...it was an hour before the heat began to cut away the deathly chill so that he could stop shivering. (Al Cody)
198. ...[he] took up the ax and began to cut away the earth from around a rock. (John Ehle)
199. There was a shriek of a door being torn from its hinges. (Kurt Vonnegut, Jr.)
200. The swirling water tore him from the house... (Scott Seegers)
201. The screams tore from his very guts. (Ralph Ellison)
202. If he lived, they could tear the story from him in a matter of hours. (Clive Cussler)
203. But the river tore away the rocks almost as soon as they were placed. (Peter T. White)
204. Freedom, for her and millions of others, means tearing the lash away from the overseer and using it to flog him to death. (John Holt)
205. ...tearing himself away from the frantic girl he had ridden away to join his forces. (Zane Grey)
206. Joel watched apathetically while she broke off a cold slab of cornbread... (Truman Capote)
207. ...the Hungarian bullets broke the clay off the bank. (Saul Bellow)
208. Johnny could easily have broken off from the posse ... (Steven C. Lawrence)
209. ...the three-toed chef broke out a gourmet spread... (Judith Johnson Shrewin)
210. Scuffles broke out between Saigon police and a group of Buddhist nuns... (AP)
211. All of a sudden she broke out of her pose... (Earl MacRauch)
212. Rifle fire broke out from the fort... (Aubrey Menen)
213. She cut some ostrich plumes off an old hat... (John Cheever)
214. "I can't imagine how he contrived to support a family, for his father cut him off without a groat..." (Georgette Heyer)
215. He creates a scene isolated in time and cut off from the rest of the world... (Gordon E. Bigelow)
216. She cut the picture out and pasted it in a scrapbook. (Daphne Athas)
217. "...he was going to cut Rodric out of any share..." (Susan Howatch)
218. ...[they] cut out eleven merchantmen from the October convoy... (James A. Michener)
219. The cabin hatch had been torn off its hinges... (Clive Cussler)
220. Only then did he tear off the disguise of mediocrity which he had been wearing all these years. (Lawrence Durrell)
221. I tore off some paper from the roller. (Cecilia Bartholemew)
222. Charlie scribbled an address in his notebook and tore out the page. (F. Scott Fitzgerald)
223. The heavy pebbles tore her pocket right out of her dress. (Laura Ingalls Wilder)
224. ...the sound of the machine gun was terrifying. It tore them violently out of their sleep... (Norman Mailer)
225. Wolves had broken into the King's lodge... (H. Bedford-Jones)
226. A stream broke into the cave... (Robert Ardrey)

227. ...the saccharine whine broke into his ear... (Ivan Gold)
228. The lean face broke into a smile. (John Steinbeck)
229. ...Lucius broke into a tough-guy stride... (David Madden)
230. "Oh, Peter," Rosemarie broke in with trembling lips. (William Styron)
231. "...I'll break you in as my assistant." (Mary Higgins Clark)
232. I broke through the hedge... (Leslie Norris)
233. The August sun broke through early morning mist and rain... (Barbara Tuchman)
234. We eventually broke through the woods to the edge of Rift Pond. (Roy Hunter)
235. I put on a clean blue shirt which cuts into my neck. (John Bart Gerald)
236. ...where subterranean canyons cut into the continental shelf. (Peter Britton)
237. Her laugh cut into his nerves. (Ellen Glasgow)
238. Gladwin cut in impatiently, "Can it, Stan!" (Arthur Hailey)
239. Nick knew the trout's teeth would cut through the snell of the hook. (Ernest Hemingway)
240. ...a spotlight beam cut through the twilight... (Dan H. Thrapp)
241. Pollini is searching for a piano that is mellow, yet brilliant enough to cut through an orchestra. (Michele Ingrassia)
242. ...he had to cut through dense jungles into brief clearings... (David Madden)
243. The bullets tore into the canopy... (Peter Matthiessen)
244. Climbing, the engine apparently tore into the wing... (Time)
245. Anderson felt the wrench of an arrow as it tore through his coat. (Zane Grey)
246. The lightning tore through the fabric of sky above my head. (Howard Breslin)
247. Forward he went, tearing his body through the grasping prongs which lacerated his skin... (Thomas Boyd)
248. Skinner speared a blue moki which broke free... (Joy Williams)
249. She tried to break free of his two-handed grip... (Doris Miles Disney)
250. ...the animal broke free from her chain... (AP)
251. ...once in a while the [motion] picture breaks free into Vigo's mad, strangely majestic kind of poetry. (James Agee)
252. The Yukon was straining to break loose the ice that bound it down. (Jack London)
253. ...the spring floods had not yet broke loose... (James A. Michener)
254. "A plaque broke loose from the lining of an artery..." (Kenneth H. Cooper)
255. Once the plaster has hardened, he cuts the whole block free. (Kenneth F. Weaver)
256. ...he had cut himself emotionally free of her... (Flannery O'Connor)
257. Music, however, was slower to cut itself free from tonality... (Donald Mitchell)
258. To save his boat he cut the net loose. (Edward I. Griffin)
259. ...I cut loose with a right to the chin... (Ted Poston)
260. Beauty cut loose of its sacramental base is a decadent pleasure... (Theodore Roszak)
261. ...he [=Billy Carter] has begun to cut his celebrity loose from his sibling's... (Lance Morrow)
262. His black hat was as stained as his coat, and the band torn half free... (John Steinbeck)
263. ...the ghastly sound of limbs being torn free of large trees. (Jack Ludwig)
264. ...the escape rocket would tear him free from the booster... (Kenneth F. Weaver)
265. Then Yossarian had McWatt climb and keep climbing higher and higher until they tore free finally into a calm, diamond-blue sky... (Joseph Heller)
266. ...40 tons of explosives had torn loose 225,000 tons of ore. (Kip Ross)
267. ...[the drug] gave me even bigger kicks and let me tear loose my emotions. (William Styron)
268. ...others, such as sponges and sea squirts, remain permanently fixed, or if torn loose from their base are incapable of forming a new attachment. (ARCO Scholarship Exam Series: SAT)
269. Then Danny broke through the last of the beeches on to Lonesome Pond. (Jim Kjelgaard)
270. At the same time, the men on either flank broke from their cover, shouting their war cries. (Jay Williams)

271. Cedeno, breaking from first base on the pitch, went all the way [home] on Bob Watson's single... (Virginian-Pilot)
272. The horse broke off through the trees... (Ernest Hemingway)
273. Metcalf breaks into the secondary. (Pat Summerall)
274. I struck a match and a half dozen [bedbugs] broke along my pillow. (James Agee)
275. Lucius walked back down the alley and cut over to the clay bank. (David Madden)
276. ...he jumped up suddenly, strode out the door, cut straight through his grounds to the fence... (Edmund Wilson)
277. ...the fish was at the stern, plunging and cutting from side to side in desperation... (Ernest Hemingway)
278. The first back goes straight ahead or cuts back over the center. (Dennis Caryl)
279. The stranger gunned the motor and they cut away from the dock and up the river. (William Berge)
280. Neil Bonnett cut under Richard Petty with five laps to go. (Atlanta Constitution)
281. How those children did tear about here! (Charlotte Perkins Gilman)
282. He threw on his clothes, tore down to the street... (Margery Allingham)
283. ...I saw a streak of white as Billy tore round the corner... (Robert Penn Warren)
284. We jumped in his car, tore out to the field... (Melville Bell Grosvenor)
285. "...we tore across the line to stake our claims." (Robert Paul Jordan)
286. The neighborhood dogs tore after the flying motorcycle. (Given Drayton Allmon)
287. Then, and only then, can we break open our rocks and see their composition. (Robert D. Ballard)
288. ...this trail driver broke open a sealed chamber of memory. (Zane Grey)
289. ...[he] chased a girl to her home and attempted to break open her locked door. (Jessie Bernard)
290. Perhaps,...the Canyon is a great crack that broke open when the earth cooled... (Joseph Wood Krutch)
291. ...his eagerness to seize all the possibilities breaking open before his vision. (Ayn Rand)
292. The pavements still retained their heat just as watermelons did when you cut them open at dusk... (Lawrence Durrell)
293. He smiled agreeably to himself, as he thought of those biscuits, each cut open and sopped in bacon grease... (Jack London)
294. If you cut a tulip bulb open carefully in November you can find and separate leaf and flower tissue... (Carlton B. Lees)
295. In his office he tore open the container. (Gertrude Friedberg)
296. In frantic haste, he tore open the cages containing the kiir. (John Morressy)
297. In the breakfast room she tore open the frail door to George's little liquor cabinet... (Peter Taylor)
298. A cream-colored brown-shaded china rabbit three or four inches tall, with bluish lights in the china, one ear laid back: he is broken through the back and the pieces have been fitted together... (James Agee)
299. The axehead broke, through the eye. (Hal Borland)
300. ...the blow had fallen partially splitting the jawbone on the left side and breaking it quite on through on the right. (Robert Ardrey)
301. Just below and beyond it is a wide flat piece of shale the color of a bruise. It is broken several ways across and is sunken into the dirt. (James Agee)
302. ...the bitter wind cutting my shoulders through my thin coat. (Katherine Anne Porter)
303. "Sometimes when they [=drunks] fall, it [=flask] cuts them up right through their clothes." (Kay Boyle)
304. Except for steaks, all meats are cut across the grain... (James A. Beall)
305. ...[you] cut the wall paper at corners from floor to ceiling... (Penelope Angell)

306. ...[he] made a slow cutting movement with his palm, cutting the air from left to right... (Lawrence Durrell)
307. ...his overcoat was torn completely down the back... (William Faulkner)
308. Vincent tore the letter across completely. (Richard Power)
309. I tore my only good trousers from knee to ankle. (Langston Hughes)
310. Trees three feet in diameter had been broken off like matchsticks... (George Woodbury)
311. Then he broke off singing with a scoff. (John Barth)
312. His reverie was broken off by the voice of Ben Brown... (F. Scott Fitzgerald)
313. ...to break off pursuit and pull back now... was not a prelude to victory. (Barbara Tuchman)
314. The letter broke off unfinished. (Graham Greene)
315. ...he interviewed Fidel Castro -- before U.S.-Cuba ties broke off... (Playboy)
316. You cut the cotton flush off at the ground... (James Agee)
317. ...the gas of course had been cut off. (Doris Lessing)
318. In order to cut off the sound, they closed the door... (W. C. Tuttle)
319. ...he put his books in his briefcase and cut off the lamp and left... (Tim Keppel)
320. Before I can cut off its [= wild duck] retreat it waddles painfully from its brief refuge into the water. (Loren Eiseley)
321. Roads, bridges, messages in a great empire are always advanced inventions, because if they are cut then authority is cut off and breaks down... (Jacob Brownowski)
322. ...the [movie] projector breaks down four times. (Stephen Farber)
323. ...the sawmill broke down... (Hal Borland)
324. If inflation goes unchecked, a financial system will gradually, but inevitably break down. (William Simon)
325. Her body threatened to break down. (Joyce Carol Oates)
326. My efforts to break down their superstitions were not greatly helped... (Budd Schulberg)
327. ...I thought for a moment I would break down weeping. (Philip Carey)
328. One of the customers laughed, and Aunt Wilma cut him down with a swift glare. (James Thurber)
329. ...[he] was cut down by a Union cavalryman's saber. (Ladislas Farago)
330. ...an Indian shot an arrow through his leg, and O'Brien dropped in the long grass, breaking the arrow short each side of the limb... (H. M. Tomlinson)
331. Bryant broke short a potentially dangerous exchange. (Gore Vidal)
332. ...[the monofilament] sometimes caught in the cracks in the rocks, until it broke off short. (Robert Murphy)
333. Her hair had been cut short. (Thomas Hinde)
334. Scuffling and a man's laugh, cut short, sounded from inside. (Sylvia Plath)
335. Mrs. Garrison decided to cut the interview short. (John Cheever)
336. Orloff's automatic protest was cut off short by Birnam... (Isaac Asimov)
337. President Ford told world leaders on Friday they must act now to cut arms... (AP)
338. The primitive level of agriculture kept population density very low. Spanish slave raids cut the numbers further. (Gary MacEoin)
339. The smaller motors they can handle should also cut \$1000 or more from the cost... (Bill McKeown)
340. "But shouldn't you cut the speed below normal?" (Ayn Rand)
341. He may become lethargic about sex and cut down his activity. (Nancy Mayer)
342. "It used to be how they cut a bossy gang foreman or manager down to size." (Ursula K. LeGuin)
343. They [=child's clothes] were evidently cut down from a man's clothes. (D. H. Lawrence)
344. ...the force had been cut down from three cars to one. (Ray Bradbury)
345. "Now let's cut out all this jiving." (Norman Mailer)
346. He would like to cut back the population of the United States to a hundred million. (John McPhee)

347. ...internal troubles had resulted in the regular manager's being broken to clerk. (Peter Hellman)
348. Each year the horses were broken to harness or the saddle... (Hal Borland)
349. ...his opposition to the more vulgar kind of attempt to break literature to the yoke of party doctrine... (Edmund Wilson)
350. To create the pictures, glaziers cut hand-blown colored glass according to a pattern. (National Geographic)
351. In winter he wore black broadcloth cut to a fashion at least forty years old. (Henry Bellamann)
352. ...I actually found myself wishing that I had been a woman of another sort, cut to the pattern of his paramours... (Norah Lofts)
353. ...a crab, cutting at the meat with his powerful claws... (James A. Michener)
354. The fact unexpectedly cut at him. (F. Scott Fitzgerald)
355. In another way Orwell cut at the root of things by his famous attempt to stop being a typical middle-class intellectual... (Kingsley Amis)
356. She boldly cut loose at us with two torpedoes... (Lowell Thomas)
357. ...the refugees cut away at the trees for wood. (AP)
358. ...she tore at my hair until tears came forth. (John Barth)
359. Briars tore at Jim's pants. (John Cheever)
360. A piercing wind tears at the taut rigging. (Howard La Fay)
361. The sound tore at his nerves. (Norman Mailer)
362. Two entries in the diary tear at the mind. (Bernard Wolfe)
363. The sheet was torn asunder... (Lovell Thompson)
364. Even worse, your conscience, conviction, integrity, and loyalties were torn asunder." (Arthur Haley)
365. A shattering blast tore asunder the black curtain of the night... (Lowell Thomas)
366. At the Reformation, the Church was torn asunder... (Alfred North Whitehead)
367. The curtains were torn aside. (Caroline Stafford)
368. Ever and again the lightning tore aside the darkness. (J. R. R. Tolkien)
369. I was heading for the door, torn between anger and a fierce excitement... (Ralph Ellison)
370. "Mutton cuts so well and gives variety." (Inglis Fletcher)
371. The drums played sweet thunder, then broke [playing]... (John Stewart)
372. "it's a good piano," said Dyck, breaking off [playing]. (Paul Goodman)
373. "I wonder," she began, then broke off [speaking] with a laugh. (Ellen Glasgow)
374. The wind from the river cut [one's sense] only at street crossings. (Truman Capote)
375. His voice trailed off, allowing the insinuation to cut [someone's feelings]. (James A. Michener)
376. ...in Boston the vein of self-satisfaction and conservatism cuts [] too deeply. (Elizabeth Hardwick)

SLANG, PRODUCTIVITY, AND SEMANTIC THEORY

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For the past seven years members of my introductory English grammar class have left the course with a list of campus slang terms to tuck away in a scrapbook for a good laugh in twenty years. The lists are a collection of the terms which they and their classmates submitted as good, current UNC-CH slang. About half of the terms are well enough established to be listed in slang dictionaries, e.g., the words bread, bucks, ducats, and jack meaning 'money'. Other terms, like green 'naïve' or gross 'vulgar', appear as standard vocabulary items in current desk dictionaries. Despite problems of currency and definition,* the collection as a whole represents a segment of the living vocabulary of a fairly homogeneous group for a relatively short period of time and, as such, can be used to illustrate the range and complexity of human semantic ability which a semantic theory must account for.

Perhaps the most obvious characteristic of the corpus that requires explanation is the productive relationship among so many of the items. A favorite device of productivity is the addition of a particle to a word of any part of speech. For example, many nouns and adjectives have related verb forms with the particle out: plastic out 'to be artificial or insincere', freak out 'to become wildly excited', gross out 'to cause disgust', sack out 'to go to sleep', pie out 'to become drunk', wuss out 'to refuse to go along with the crowd', prep out 'to dress in the manner of a prep school grad'. Sometimes the particle construction is typical of and strengthens the synonymy of a group of verbs; blimp out, pig out, pork out, munch out, chow down, and grease down all mean 'to eat'. Constructions like these are frequent in the data and offer a challenge to semantic theory.

A productive process, as opposed to coinage, is motivated by something already in the language. Slang exploits existing forms and their current meanings in various ways, drawing on and often mixing resources from all parts of the grammar. In addition, the meanings of slang expressions often depend on rather specific references to extra-linguistic facts. A theory which does not attempt to account for productivity will treat much slang vocabulary as coinage. A theory which does attempt to account for productivity, however, not only must explain that a given word is

*For a recent discussion of the problems of defining slang, see Bethany K. Dumas and Jonathan Lighter. 1978. "Is Slang a Word for Linguists?" American Speech 53:5-17.

associated with a given meaning but also must reckon with the way in which that association between form and meaning is derived, i.e., the semantic theory must explain motivation. The purpose of this paper is to point out some of the intricacies of motivation that such a theory would have to handle by illustrating the productive processes at work in a tiny segment of English slang vocabulary.

Semantic change as illustrated by this corpus covers a series of increasing divergences from general usage. The least apparent, which may not be an example of semantic change at all, is the much more frequent use of a word in slang than in general usage. The form and meaning of the word is essentially unaltered. Although gross 'vulgar' barely changes in meaning in slang, it is much more frequently used in set negative expressions like "How gross!" Another slight change in meaning is occasioned by a shift in part of speech or sub-category, which permits a word to occur in new contexts. Scope, grub, and daze all occur in the corpus as verbs rather than nouns; the divergence in meaning from general usage may be attributed to the difference in meaning between nouns and verbs. Scope means 'look': "Basketball games are great for scoping (through) the crowd to find someone you know." Grub means 'eat with gusto': "I can't wait to grub these steaks." To daze is to 'daydream, be inattentive': "What did you say? I was dazing." Sauce exemplifies sub-categorial change, from mass noun to count noun: "Let's go to Clarence's and have a couple of sauces."

Other changes range from small to considerable. To me the following items exemplify a small change in meaning. Abuse 'lack of success in a physical situation': "They beat us ten to two. What abuse!" Casual 'acceptable, good, fun': A: "I thought I'd study a while and then go out with Bill." B: "That's casual." Decent 'expression of approval or satisfaction': A: "Look at my new stereo." B: "Decent!" Dominant 'succeed': "We picked up three girls last night--we're dominating!" Plastic 'artificial, fake': "That new restaurant is so plastic even the 'wooden' tables are made of formica." Ugly 'mean, overly critical': "You Yankees are all so ugly."

The following seem to illustrate a greater change in meaning. Lay 'stay, remain': "You going to lay, or you want to come with me?" Intense 'very unusual or uncommon and pleasing': "That painting by Dali is really intense." Peasant 'dull-witted person': "You peasant! What did you do that for?" Pretty 'great, terrific': "That speech you gave was pretty."

The shifting of meaning by degree is only one of a number of semantic processes operating in the language. A notion of the number and kind shaping the slang at UNC-CH can be gained by looking at a small set of related terms.

Social fraternities and sororities are strongly entrenched at the University of North Carolina at Chapel Hill, and a subset of the slang collection refers to them. All of the terms are at least slightly derogatory, and most have connotations concerning conformity in manner of dress. The semantic range is quite

restrictive, with almost all terms meaning 'acting like a typical fraternity or sorority member'. Four of the terms pivot around the word baggies. Although baggies does not itself appear in the corpus, it is the missing piece that elucidates the rest of the picture. According to The Dictionary of American Slang, baggies are "full trousers with very wide cuffs, popular with students and others in the early 1970's and resembling the styles of the 1930's." (Wentworth and Flexner, 674). A bagger or a fratty bagger is 'a fraternity member'; fratty baggers are also a particular style of shoe, called topsiders. Some baggers at UNC-CH live at the E-bag, 'the SAE fraternity house'. A frat rat is likewise a 'fraternity member'; if he frats out he has 'short hair and dresses in khaki pants, a LaCoste shirt, topsiders, and no socks'. A non-Greek can frat out too, if he 'dresses to resemble a fraternity member'. Freddie Fraternity or just Freddie is 'a typical fraternity member'; Suzie Sorority, Sorority Suzie, Sorority Sis or just plain Suzie is 'a typical sorority member'.

The semantic processes responsible for just these thirteen related items require a wide range of traditional terms from the vocabulary of rhetoric and semantic change: METONYMY, METAPHOR, SYNECDOCHE, GENERALIZATION, SPECIALIZATION, CLIPPING, ACRONYM, ALLITERATION, RHYMING.

Baggies is a METAPHOR for trousers: the loose-fitting pants look like bags. Bagger illustrates METONYMY: a fraternity member wears the style of pants called baggies. Fratty bagger is an expansion to stress that it is a fraternity member who customarily wears such trousers, and fraternity occurs in its clipped and derived adjectival form fratty. Frat out results from combining the clipped form of fraternity and the particle out; frat out has both a general and a specialized meaning. By METONYMY from fratty bagger and by SYNECDOCHE from the specialized meaning of frat out comes the meaning 'topsider shoes' for fratty baggers. Frat rat illustrates both CLIPPING and RHYMING, the pejorative connotation helped by the allusion to rat. In E-bag, E is an ACRONYM for SAE (itself an acronym for Sigma Alpha Epsilon); and bag, CLIPPING from bagger, is a METONYM, from 'fraternity member' to 'house of fraternity member'. Freddie Fraternity, Suzie Sorority, Sorority Suzie, and Sorority Sis all show ALLITERATION. Freddie and Suzie are derived by CLIPPING from their respective alliterative phrases.

Let us look first at four traditional ways of classifying change in meaning--generalization, specialization, amelioration, and pejoration.

In GENERALIZATION a term acquires a wider range of referents. Jeans used to mean 'a style of cotton trousers', but now on the bottom of an invitation or on a poster on campus it means 'casual attire.' Although a dude may be a 'greenhorn' or a 'flashily dressed male' to an outsider, via black use dude has come to mean on campus 'any adult male', and there is some evidence that it is further generalizing to mean 'any adult, whether male or female'. Schiz or schiz out, derived ultimately from the specific mental disorder schizophrenia, means 'to have a mental breakdown'. In the various constructions that mean vomit--blow cookies, blow

groceries, blow grits--the specific terms cookies, groceries, and grits have generalized to mean 'food' while retaining their specialized meanings in other locutions.

For many terms a generalized and specialized meaning exist concurrently. Ace means 'to make an A on a test' and 'to perform any action well'. Polislide can be either a specific reference to 'the course Political Science 41', which has the reputation for being easy, or 'any easy course'. A lizard is either 'a UNC law student' or 'any socially inept student'.

A type of change allied to generalization involves a loss of force or vividness. Intensifiers and hyperbolic expressions are particularly susceptible to such loss, a process sometimes called EMPTYING. A word is emptied of its specific meaning and retains only a value; common examples are very, quite, awfully, terrifically, terribly, etc. The ubiquitous intensifier in the corpus is really; the much less frequent intensifiers are pure, in "He was pure mean."; possible, in "You stayed out till four? Possible great time."; and real, a clipping of really, in "Joe was real juiced last night." Other expressions which no longer carry their original force are boss, casual, decent, deluxe, dynamite, groovy, heavy, key, pretty, solid, and super, all functionally synonymous, meaning 'worthy of approval'.

Opposite to generalization is the process of SPECIALIZATION. An all-nighter is not any activity which lasts all night but specifically 'a night-long stretch without sleep to study hard or to write a paper.' Sauce is no longer any type of alcohol but specifically 'beer'. The man is a representative of the law, 'a policeman'. A story is 'an afternoon television soap opera'. Grass and the weed refer not to the common culprits in a well-kept garden, but specifically to the plant Cannabis sativa, marijuana. And a pusher is not simply a salesperson, but 'one who sells marijuana or drugs'. The term straight can have any of three specialized meanings related to the general meaning 'innocent': 1) not a drug user; 2) not high on drugs at a particular moment; 3) not homosexual. The meaning of boss 'good, great' in conjunction with dogs 'feet' specializes in context so that boss dogs can be 'big, pretty, smelly, or tired feet'. With reference to a basketball player in the sentence "Tommy Lagarde has some boss dogs," boss apparently means 'big'.

The pronoun it also specializes according to context in some thirty-five expressions in the corpus, although a paraphrase meaning for it is almost impossible to specify. The dominant syntactic pattern is Verb or Noun plus it and includes bag it 'stop, forget': "You'll do great on that test tomorrow. Just bag it and let's go out."; lose it 'become rattled, unable to cope': A: "What happened when the police stopped you?" B: "I just lost it completely."; book it 'study hard': "I really booked it last night for this test."; floor it 'hurry': "You'd better floor it if you're going this weekend." My favorite among such expressions is sheet it 'to wear a dress or skirt without stockings or knee socks, to show pale legs': "I don't feel like wearing hose today. I'm going to sheet it." In this last example, the paleness involved

is a metonym, and sheet is a metaphor of the metonym.

It is well known that words change meaning when their connotations become more or less favorable. Both processes, AMELIORATION and PEJORATION, occur in slang. Even though slang meanings are generally negative in tone, the dominant productive process of the two is amelioration. Many words enter slang from the taboo terms of subcultures; increased use causes such terms to lose their shock effect and sometimes even to become euphemistic. A wench can now have neutral connotations and mean simply 'a young female.' Shit can have downright positive connotations, as in "That dude really knew his shit for the quiz today." And freak is a productive second element meaning 'extremely interested in or overly fond of': "Debbie is a real popcorn-freak." Screw (or its derivative screw up), originally a metaphorical obscenity, is a hackneyed term meaning 'to do poorly, to make a mistake'. For some items an ameliorated meaning coexists with an earlier or derived negative meaning. For example, bitching, an adjective derived from bitch, can mean either 'difficult' or, when applied to females, 'good-looking': "What a bitching exam!" vs. "What a bitching girl!"

Pejoration is less evident than amelioration in slang. The function of slang is such that words likely to undergo pejoration, i.e., words with positive or at least neutral connotations, have little reason to be adopted in the first place. Furthermore, it is characteristic of slang that new items get used quite frequently in a short period of time; a widening sphere of use leads to wider acceptability, a situation which favors amelioration rather than pejoration. Nevertheless, the corpus does contain several instances of pejoration. A facial is 'an insult or a rebuff': "Ben got turned down by that girl again--what a facial!" A future is 'an unattractive male', and a linebacker is 'a person who is obnoxious, odd, or simply out of it'. To scope is not simply to look around but 'to cheat by looking at another student's paper'. And cosmic has pejorated to mean 'fashionable': "She's wearing those platform shoes just to be cosmic." Perhaps the most intriguing are three geometric terms--all of which can have negative connotations--straight, square, and quad. All are derogatory epithets which designate with various connotations 'a person who does not fit in with the prevailing college life style'.

The four tropes of traditional rhetoric--METONYMY, SYNECDOCHE, METAPHOR, and IRONY--can be used for semantic processes that name things indirectly.

METONYMY makes reference by association. (See Ruhl 1976 for a discussion of metonymy in general usage.) A beer, then, is called a brew because of the process of manufacture, a chill because of its serving temperature, or a ha-ha because of the pleasure of drinking it. The term streak specifies the rapidity of the action but does not mention the nakedness of the participants. Pad calls to mind the bedding in 'a place of residence', and jing 'money' imitates the sound of coins. Shades 'sunglasses' function to shade the eyes from sun or bright light. Since concern for the environment is fashionable among certain segments of

the college population and since organic gardening and organic foods have become ecological symbols, the term organic has come to mean 'fashionable', as in "Wearing Earth Shoes is organic." An even more oblique metonymy is in town for the weekend for 'homosexual': "Look at the way he walks; he must be in town for the weekend." Supposedly this characterization is a reference to Chapel Hill's reputation as a weekend gathering place for homosexuals from throughout the region.

SYNECDOCHE, sometimes considered a kind of metonymy, names the whole by the part or the part by the whole. Threads constitute the material that 'clothes' are made of; the tube is an essential part of 'a television set'; and no 'automobile' can go without wheels.

METAPHOR, sometimes dismissed in semantic studies as a stylistic quirk, is very frequent in slang. Animal metaphor is perhaps the most obvious and straightforward type in this corpus. An animal is 'an athlete'. A fox is 'an attractive female', and a tuna is 'an attractive male'. A turkey is 'a person who acts stupid or never seems to do things right', and a squid is 'a socially repulsive person'. A snake is 'a person who steals another's date'; a hound is 'a sexually aggressive male'. To gator is to 'wallow in beer while doing a dance in imitation of an alligator'. One who acts squirrely acts 'crazy, nuts, or insane'. The animal metaphors go on and on.

A few campus landmarks have acquired metaphoric names.

'Spencer Dormitory' for women is the convent: "The visitation policy at the convent is too rigid." The tomb is the dark and spooky 'first floor of Wilson Library': "Vicki found several books that she needed in the tomb." 'The basement of Phillips Hall', where the computer is housed, is the dungeon: "They spent all afternoon in the dungeon working on their programs."

Metaphors related to drugs include discipline and shotgun. Discipline means 'marijuana or drugs'--the image being a regimen which controls one's life. A shotgun is 'a procedure in which one person puts the lit end of a marijuana cigarette in his mouth and exhales, sending a stream of smoke which is inhaled by another'. Two other weapons metaphors have to do with religion. A sword is 'a Bible'; the image is from Hebrews 4:12: "The word of God is living and effective, sharper than any two-edged sword." A dagger, then, is 'a pocket-sized Bible or New Testament'.

A few metaphors are personifications. Rack man, perhaps formed on the widespread sandman, means 'sleep': "The rack man is calling." Rack monster, however, is 'deep tiredness or weariness that results from lack of sleep': "the rack monster is going to get you if you don't get eight hours sleep." From competitive swimming comes the green ghoulie 'the sudden loss of speed or strength when swimming': "The green ghoulie jumped on me."

IRONY is likewise important in the semantic system of slang. On the least complicated level, some terms mean the opposite of their meaning in standard usage. Bad means 'good': "Mandrill gave a bad concert last night." Mean means 'good, admirable': "He drives a mean machine." Killer weed, rather than marijuana

with a bad effect, is 'extremely high quality marijuana'. The more usual situation is that a term will have both a positive and a negative meaning. Trip, for example, means 'overwhelmingly either pleasant or disgusting'. Compare these two exchanges. A: "That was the best movie I ever saw." B: "Yeah, it was a trip." vs. A: "Dr. Smith says that he expects everyone to flunk the exam." B: "Yeah, the man's a trip." Bitching, bomb, burn, mother, shit, and wicked also have both positive and negative meanings.

A number of set expressions used to characterize a situation are ironic. Ain't life a grin? is used when everything is going wrong. That's fair is a sarcastic expression that means 'that's unfair': "You're tired of dating me? That's fair." The phrase that's close is used to discourage an unreasonable request or to refute an outrageous statement and means 'that's not close to the real situation': A: "Lend me \$10." B: "That's close."

Unfortunately the traditional terminology of rhetoric is often inadequate to account for the semantics of a term.

Since metonymy sometimes relies on a remote association with a number of possible relationships to the original concept, the metonymic connections can be puzzling. When I first heard gut course for 'easy course' I was perplexed. It seemed to me that a gut course should be a hard course, one that requires guts. I failed to construe the need for guts as an exclusive one; that's all you need for a gut course--no studying, no research, no papers, just your confident self. In some instances it seems necessary to construct a possible context in order to see the connections. Getting something from midnight supply (company) means 'pilfering, stealing': "Where did you get that bike, man, midnight supply?" Supply company is the place of acquisition; midnight is the time of acquisition. Since few legitimate supply companies carry on retail business in the middle of the night, midnight supply company implies stealth or dishonest business which must be conducted under cover of darkness. Pilfering or stealing is such an activity.

The distinction between metaphor and metonymy is sometimes hazy, and most words have not been formed simply by one process or the other. Take the slang item cut feet. To have cut feet means to 'wear white socks': "I can't believe that the teacher has cut feet today." The white color of the socks cuts the dark vertical line made by the trousers and shoes. Cut feet is not so unconnected with white socks that the new term would easily fit the traditional definition of metaphor. Yet the metonymic connection, which is logical when explained, is rather remote and complicated. Moreover, it is not enough to say that to have cut feet means to 'wear white socks', because that itself is a metonym based on a typical item of clothing for 'a rural southerner judged to have all the shortcomings and prejudices usually associated with the South', i.e., a redneck or a grit.

Semantic studies have often discussed the meaning of a word as if the form of the word were irrelevant. However, the productivity of meaning shift cannot be explained without reference to form. Phrases are likely to become acronyms; long words are likely to be clipped; and forms already in the language can

provide phonological and semantic targets for new terms. These facts help explain how slang expressions are produced.

The dominant type of ACRONYMY in this corpus is initialism: NTS, Name Tag Shaker, 'an attractive male that makes a female's heart beat so fast that her name tag shakes'; OTL, Out to Lunch, 'distracted, inattentive'; NF, No Fun; TCG, True Carolina Gentleman; DS?, Down Stairs?, "Do you want anything from the vending machine downstairs?"

An established acronym or letter name can be expanded. ABC store (acronym for Alcoholic Beverage Control store) becomes Aunt Betsey's Cookie Store, and MD (acronym for Mogen David) becomes Mad Dog. Ace 'the grade A', Dog 'the grade D', and Zoo 'the lowest grade possible, Z' are straightforward expansions. Flag for 'the grade F' relies on the shape of the letter as well, and Hook for 'the grade C' refers only to the shape.

The process of CLIPPING similarly produces shortened forms: cheese from cheesecake; cheeseman from cheesecake man; cruising from cruising for a bruising; do from hairdo; obno from obnoxious; sleaze from sleazy; use from abuse; and bro, rents, and tives from brother, parents, and relatives. A 'beer' is a Joe, from The Joseph Smith Brewing Company, or a twize, from Budweiser. To file is to 'show off, act conceited'; it is a clipping of profile, a reference to the position of the nose in the air. Clipping reduces redneck to red and gives rise to an interesting semantic situation in which red means both 'communist' and 'politically conservative Southerner (who is typically anti-communist)'.

BLENDS, usually associated with clipping, seldom occur in this corpus. Polislide is a blend of Political Science 41 and slide; spork blends spoon and fork; and droned is a blend of drunk and stoned.

The role of phonology as a productive impetus in slang should not be underestimated. Alliteration, rhyming, and mock dialect pronunciations sometimes seem motivated by the fun of playing with sounds. The polite apology Excuse me is playfully pronounced Screws me or Squeeze me, and the farewell clipped form Later (from Check you later) expands to Later, tater! ALLITERATION intervenes in Carolina Crunge from the grunge, and RHYMING pokes fun at the easy geology course popular with football players, Rocks for Jocks. When they have traded their jeans for their Sunday best, Carolina students are dressed to impress or groomed to zoom. Although most Carolina students have a distinctly regional accent themselves, they enjoy mock dialect pronunciations and spellings like wrought iron for the exclamation Right on! and Raw's for Roy Rogers' Restaurant. Raw's, of course, also alludes to the fast-food quality of the cuisine.

Sometimes the choice of pronunciation for a slang term is conditioned by a form already in the language. There need be no semantic link. This seems the situation in the rhyming expression Come in, Berlin, which simply means 'pay attention'. Brr rabbit, a complaint about the cold, is an expansion of the common brr by means of matching it to one of the few set constructions in English that contains that sound; rabbit has no semantic signifi-

cance. Ozone Ranger 'a person who is up in the ozone, out of touch with reality' undoubtedly acquired the element ranger by association with the rhyming Lone Ranger. Ralph and Buick for 'vomit' probably originated as onomatopoeitic approximations which made use of two forms already in the language. Ralph and Buick are now personified and reified, respectively, and form the basis of a number of expansions that mean 'vomit': sell Buicks; go to Europe with Ralph and Earl in a Buick, in which Earl and Europe are additional onomatopoeitic reminders; and talk to Ralph on the big white telephone, in which telephone is a metaphor for 'toilet'.

Sometimes the already existing form which triggers a slang term is not entirely arbitrary. Out of state, a synonym formed on out of sight, may be merely an already established, phonologically proximate sequence handy as a target form. However, on a campus on which the status out-of-state is likely to be quite expensive, the link with out of sight may not be purely arbitrary. The dormitory named Granville Towers has two by-names, depending on which syllable is altered--Grand Vile and Grossville. In North Carolina, where there is no pin/pen distinction, it is probably inevitable that Spencer Dormitory for women would be called Spinster Dormitory. The acronym for Reserve Officers Training Corps pronounced /ratsi/ can hardly escape the pejorative connotations of rot. Yellow jackets, a term for 'nebutal' supposedly based on its appearance, calls to mind the sting of the type of wasp of the same name. A blizzard 'a female lizard (loser)' can easily be imagined as cold and not compassionate. Perhaps the most amusing association between forms in the corpus revolves around hooker 'tow truck'. By simple metonymy a truck with a hook-shaped device for pulling cars can plausibly be called a hooker. However, it is unlikely that the association with the person who picks males up off the street is accidental.

Slang capitalizes not only on knowledge of pre-existing forms in the language but also on knowledge of the portions of the general culture important to the users. Television is by far the leading cultural source of slang for the UNC-CH campus, particularly the program Startrek. Fans of Startrek are known as trekkies. They have popularized utterances such as Beam me up, Scotty. (There's no intelligent life here.) 'I wish to be elsewhere. (Things are boring here.)' and All right, Spock, beam us up. 'We are in an uncomfortable situation and want to get out.' A person who is putting on airs or acting too erudite is reprimanded with the expression OK, Spock. The titles of television soap operas, or stories, have become proverbial to characterize a complicated personal or domestic situation: "Debbie's been on the phone with Bob for an hour--it's Young and Restless/ Search for Tomorrow/ Ryan's Hope." The program Happy Days has supplied Sit on it!; Hawaii 5-0, Be there Aloha!; Alice, Kiss my grits!; and The Mickey Mouse Club, Hey, gang! Two television programs have provided sounds to express disapproval. Gong from The Gong Show means 'stop it': "Gong on wearing those pants." The buzzer on Truth or Consequences furnishes Wank!, as in A: "What do you think of Carolina's football team?" B: "Wank!", and wanker, as in "Don't

read that book. It's a real wanker."

A second cultural source is popular music. A pink floyd 'an overwhelming experience' derives from the name of a British rock group. Bozo 'a fool', brick house 'well-built female', and twisted 'peculiar' all have been popularized by song lyrics.

Other cultural sources are less predictable. Get small is borrowed from comedian Steve Martin, and airtight loan 'safe risk' and yarbles 'fortitude' have literary origins--from The Gingerman and Clockwork Orange. The game Scrabble is responsible for use up all my letters 'to demonstrate intellectual superiority'. For those in the know, the proper response is Zygotes! or Double Word Score!

The student's devotion to the pursuit of knowledge shows up in slang in the pseudo-learned veneer of some terms. Motivate 'move around socializing in a group' and matriculate 'start a trip' are deliberate malapropisms. A dosc or dosh 'a fool' is a clipped form of the mock Latin doscus, and emboosticated 'embarrassed' resembles a 16th-century inkhorn term. Sometimes the more learned term is denotatively accurate, but its formality is picturesque in context, e.g., rotund 'fat': "That girl is really rotund." Other terms depart from their standard meanings but lack the outlandishness of deliberate malapropisms and may merely be shifts, e.g., derelict 'dull-witted person' and radical 'ultra modern or fashionable'. A bureaucratic-sounding and highly productive formative is -factor. It means 'the abundance of the preceding noun', e.g., book-factor, food-factor, noise-factor. "How's the fox-factor in English 36 this semester?" means "How many pretty girls are in English 36 this semester?"

Borrowing from foreign languages is not a feature of this corpus or of slang in general. This is not strange. One of the functions of slang is to bind people of similar persuasions; by its very nature slang is not outreaching and cosmopolitan. However, slang does borrow heavily from dialects, particularly from ethnic or special-interest groups which make an impact on mainstream culture, and from a second language if it is part of the culture, like Yiddish. In this way the language of black musicians has for decades had a significant influence on American slang, and in the past fifteen years so has the language of drug addicts. Scholarly borrowings such as those from Greek and Latin which so increased the standard and technical vocabulary of English simply have no place in slang, not even in the slang of earnest university students.

Just as associations between forms influence productivity, so do semantic links. In this corpus the semantic field air and space is realized by a variety of forms, all meaning something to do with not having one's feet planted on the ground or in reality. Allusions to the popular space saga Startrek have already been mentioned. The verb space 'be insensitive to one's surroundings' has relatives reminiscent of Startrek--space trip, space cadet, and space cadette--as well as the more ordinary spaced out, spaced, and spacey. Synonyms for space cadet(te) are airhead and ozone ranger, the latter part of the set (up) in the ozone and ozone.

The mode of communicating in space is reflected in Earth to X and Come in, Berlin. 'A person who attempts to conform to what is fashionable' is being cosmic.

Not surprisingly, the favorite productive particle in this semantic field is out. Sky out means 'leave'. Far out, out of sight, and out of state are all expressions of approval meaning 'wonderful, excellent' and emphasize the exhilarating and liberating qualities of being detached from the world. Spaced out, outside, out of here, and out of it mean 'unaware of reality' and focus on the detrimental side of detachment.

A number of terms express specifically the off-of-the-earth feeling induced by alcohol or drugs: high 'pleasantly intoxicated'; transcend 'to take pot'; cloud seeker 'a high induced by drugs'; and ethereal 'high on drugs'.

The possibility that a semantic field provides an established framework for and somehow shapes the proliferation of vocabulary items is suggested in this corpus by the large percentage of the corpus that can be assigned to a handful of semantic fields. More than twenty percent of the items occur in the four semantic fields air and space, destruction, motion, and heat.

The field which I call destruction is the largest, probably because so many names for drunk picture various methods of destruction: blasted, blind, blitzkrieged, blown up or out, bombed (out), polluted, ripped, smashed, stomped, stoned, tore out of the frame, trashed, wasted, whipped. This semantic field also encompasses a number of terms which fundamentally mean 'perform well' or which on the contrary mean 'perform poorly, be defeated', depending on whether someone destroys or is destroyed. To blow it out, destroy, or kill is to be on the giving end of the destruction, whereas abused, blown out, creamed, take the gas, used, or wiped out is to be the victim of the destruction.

The field heat, linking in part to destruction, includes various items containing burn and smoke. The range of meaning covered by both sets is almost the same, with the same types of meanings resulting from the act vs. acted upon distinction. To burn is to 'do well'. To burn up or burn for is to 'put great effort or speed into an action'. Burned out or burnt out means 'physically and mentally fatigued', and burned means 'cheated'. A story about Bob can illustrate the relationship among the terms. "Bob needed to burn his chemistry exam, so he began to burn for it right after Thanksgiving. For days he burned up the various charts and tables. After the exam Bob was burnt out and couldn't attend the fraternity Christmas party. When he received his C+, he felt he had been burned." A similar script uses smoke words and involves Sam. "Sam was really smoking 'very intense, fast' the days before exams. He made sure that he knew his smoke 'facts'. He needed to smoke 'do well on' that exam. However, the exam itself was smoking 'difficult', what you would call a real smoker 'difficult situation'. When the grades were posted, Sam felt that he got smoked 'defeated, cheated'.

Two communicative functions of language are especially important in the corpus--name-calling and greetings. For each

type, the range of meaning is slight, and the proliferation of terms is great.

Derogatory epithets abound. Many have already been mentioned to illustrate various productive processes. Others include cracker jack, cretin, crud, dildo, dimwit, dingleberry, dip, dork, jerk, jerk face, nob, punk, quimp, tang, three dollar bill, tool, twerp, twink, ween, wimp, wuss, and yo-yo. The citations for derogatory epithets tend to be monotonous. Those for jerk and wuss are typical and could just as well illustrate a possible context for any of the others: "Jim is such a jerk. We had a date Saturday night, but he didn't show up." "Come on, you wuss! Hit the basket."

What I have called greetings are those expressions roughly equivalent to hello and goodby. Most semantic theories consider such forms idiomatic or formulaic and do not attempt to otherwise incorporate them in the grammar. Such an approach seems to deny obvious external links with the standard vocabulary and internal links among the greetings. Most of the expressions for hello are questions: What's happening?; How's it happening?; What does it look like?; What's up?; What's going down?; Where's it at? Although now losing popularity, the favorite earlier in the 1970's was What it is?, borrowed from black speakers. Those not in the form of a question are hey gang, howdy, yo, and check in. Check in provides a link with the terms for goodby, most of which derive from check you later. Check you and later are both clippings, and check you on the flip side and later, tater are expansions on them. Catch you later simply substitutes a different verb, and catch you is its clipping. The remaining farewell expression is it's been real, possibly a clipping of it's been real nice to see you.

A number of terms I cannot explain for want of information to complete the picture. It's like trying to conceive of a cat from seeing only its tail. Among these hard ones are book 'leave': "Time for class. I've got to book." Perhaps it is connected with "I have to leave to hit the books." Another expression for 'leave' is bun this J. The J could be an acronym for joint, but what is bun? And why Bottom? as an expression of approval for a great performance or maneuver? A student suggests that it refers to a basketball going through the hoop and touching nothing but the net. Buy lunch means to 'get injured', as in "Voight really bought lunch on that play." Can it be related to buy the farm 'die'? Or perhaps lunch is the same as in out to lunch, in which the basic meaning is 'unconsciousness'. When I first heard lose my cookies, I thought I knew what it meant. Blow cookies, blow lunch, and lose lunch all mean 'vomit', and I was certain that lose cookies just completed the set. However, lose cookies means 'act crazy': "She lost her cookies when she heard she made an A."

Forms whose motivations are difficult to conceive of are in fact few. For many terms in the corpus, more than one explanation is possible, and readers will undoubtedly have alternate ways of explaining many of my examples. In some instances, in using an expression as an example for one process I did not note that other processes are involved. It might be, as Roger Wescott (1979) argues, that expressions can have more than one motivation. The

point that I have stressed repeatedly is that slang evidences productivity, often quite complex productivity. In many instances the motivation is easy to see but difficult to explain, as the example midnight supply company shows. Most people would be able to guess that 'steal' is the meaning of another term in the corpus, five-finger discount. What is there in our linguistic ability that enables a speaker to create a form like five-finger discount and the hearer to readily guess its meaning? An adequate semantic theory will have to answer these questions.

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SYSTEMIC ANALYSIS OF OLD ENGLISH NOMINAL GROUPS

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A basic step in the development of a systemic grammar for Old English is the description of the Old English nominal group.¹ Wulfstan's Late West Saxon Sermo Lupi ad Anglos affords a small test corpus of about 300 nominal groups and nominal-group complexes.² A characteristic systemic model for surface features of nominal groups in modern English that can be brought to this data presupposes that at one degree of resolution the premodifier element may be analyzed as sequentially and functionally separate optional elements d(eterminer), e(pithet) and n(ominal) before non-optional h(ead) element. The determiner may be realized by deictics, numerals and quantifiers. The epithet may be realized by adjectives and participles. The nominal may be realized by nouns. The head element is normally realized by nouns, but when it is realized by adjectives or determiners it may colligate with the optional r element at premodifier, realized by adverbs. The postmodifier element may in turn be analyzed into sequentially separate q elements. The determiner element at a further degree of resolution reveals sequentially and functionally separate d₁ d₂ d₃... elements, realized by distinct word classes (cf. Muir 1972: 25-40). A group with a morphology such as this is no longer seen to function syntactically by realizing an element at clause rank directly. Rather the nominal group realizes an element, either α or β (hypotactically ordered) in the group complex, which in turn functions syntactically within the unit of clause rank (Berry 1975: 94-106).

As an initial adaptation of these principles, the structural types for h in the nominal groups of Sermo Lupi (hereafter SL) may be listed as the one-word h element, and the word-complex at h element. In the first category, the h element is typically realized by noun word class, but four other realization types are found in SL: pronoun, adjective, participle and determiner types, as in the following examples:³

1. Leofan men (4)

$$\begin{array}{c} \alpha \\ \swarrow \quad \searrow \\ e \quad h \end{array}$$
 ("Beloved people")

2. us eallum (53)

$$\begin{array}{c} \alpha \\ \swarrow \quad \searrow \\ h \quad q \end{array}$$
 ("us all")

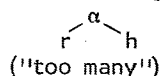
3. to gridlease (40)

$$\begin{array}{c} \alpha \\ \swarrow \quad \searrow \\ r \quad h \end{array}$$
 ("too violated")

4. lifiendne (77)

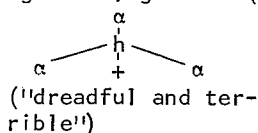
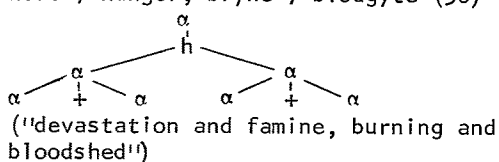


5. to mænege (43)

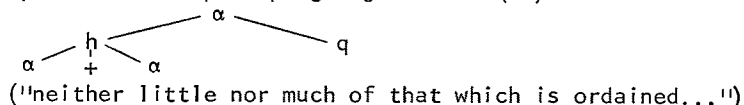


In these examples, α represents the rank of group-complex with its single functional element, and the rest of the diagram represents the rank of group, usually with two functional elements. (Hereafter the terms 'word-complex' and 'group-complex' will be used solely to denote complexes realized by more than one element.)

The second structural type, the word-complex at h element, can be seen as a collection of three different but not entirely exclusive sub-types, the single-layer word-complex, the multi-layer, and the modified, with adjectives, nouns and determiners at h :

6. Single-layer
egeslic 7 grimlic (8)7. Multi-layer
here 7 hunger, bryne 7 blodgyte (56)8. Modified

lytel ne micel þæs þe gelagod is... (26)



Structural types for premodifier in SL are more varied. Within the limits of SL data, the n element may be described in Old English as a premodifier realized primarily by nouns in the genitive case, but also by nouns in the dative, determiners in the genitive, and pronouns and adjectives in either genitive or dative cases. The e element is described as a premodifier realized by adjectives and participles in the same case as the exponent of the h element. The d element is a premodifier realized by deictics, numerals and quantifiers in the same case as the exponent of the h element. Deictics here include comparative and superlative forms from whatever root, and the inflected or uninflected forms of the personal pronoun in genitive case denoting 'possession' (not partitive in function, which would make them exponents of n element). Finally the r element is described as a premodifier realized by adverbs.

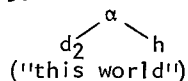
In accord with these descriptions, nominal groups in SL with more than one premodifier element provide evidence for a

normative d e n h sequence structure in Old English. Six examples show the structure d e h, where e is realized by adjectives or participles, and d by his (personal pronoun genitive, "his"), or by forms of se/seo/paet ("the/that"), pes/beos/bis ("this"), micel ("much/great") and mænig ("many"). Another example shows the structure e n h, where e is realized by an adjective and n by a noun in the genitive.

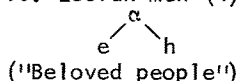
At a further degree of resolution, a normative d₁ d₂ d₃ sequence structure is suggested. Five examples reveal d₁ d₂ h where d₁ is realized by a form of eall ("all"), and d₂ by a form of se/seo/paet ("the/that"), pes/beos/bis ("this"), or his ("his"). Another example shows d₂ d₃ where d₂ is realized by a form of se/seo/paet ("the/that"), and d₃ by a form of micel (þone miclan dom þe we ealle to sculon, 208, "that great judgement which we must all go to"). Because SL lacks further examples of multiple d elements, many exponents of d in simpler nominal groups must go without further classification: cardinal numbers, ænig ("any"), ælc ("each"), æghwylc ("every"), gewelhwylc ("nearly every"), sum ("some"), nan ("no"), lytel ("little"), comparatives and superlatives.

Structural types for premodifiers in SL at the first degree of resolution may now be listed as one-element types, two-element types, word-complex types and rank-shifted types. The five one-element types are of course the d/e/n/r types, and the multiple d type:

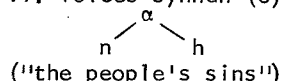
9. ðeos worold (4)



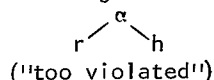
10. Leofan men (4)



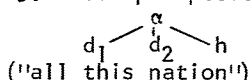
11. folces synnan (6)



12. to gridlease (40)



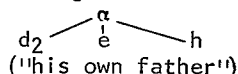
13. ealle þas þeode (14)



The two-element types can be seen in these examples:

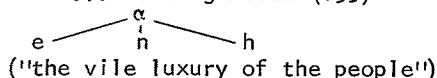
14. d-e type

his agenum faeder (63)



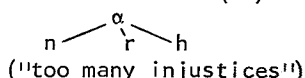
15. e-n type

fulne...folces gælsan (193)



16. n-r type

unrihta to fela (11)

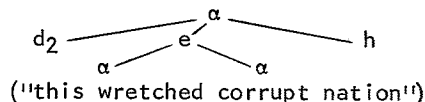


Only the d-e type has a broad range of realizations in SL; the other types are represented by one or two nominal groups each.

The word-complex type and the rank-shifted group type are typified in the following two examples:

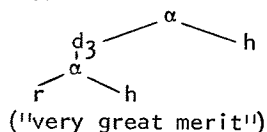
17. word-complex type

bysse earman forsyngodan þeode (175)



18. rank-shifted group type

swyþe micelan earnungan (19)

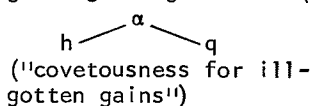


The word-complex which realizes e element in SL groups is itself realized by adjective and participle words alike. The word-complex which realizes n element is realized only by nouns in the genitive case. Rank-shifted groups occur as exponents of all premodifier elements, d/e/n/r; and all such groups are conventional structural types, represented elsewhere at normal group rank in SL.

Structural types at q in SL groups include the one-word q element, the word-complex at q, various forms of rank-shift, and multiple q. The one-word q element has a variety of realizations:

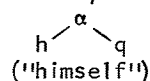
19. noun type

gitsunge wohgestreona (189)



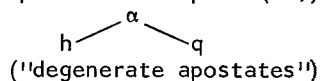
20. adjective type

hine sylfne (119)



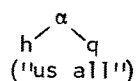
21. participle type

apostatan abroþene (147)



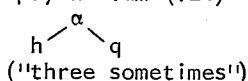
22. determiner type

us eallum (53)



23. adverb type

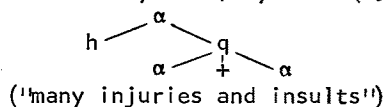
þry hwilum (124)



Noun exponents of q are always in the genitive case; the adjectives, participle (one example) and determiners (all quantifiers) are in gender, number and case concord with the h element.

When the exponent of q is a word-complex, as in

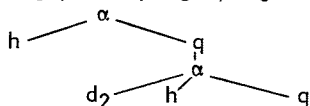
24. fela byrsta 7 bysmara (15)



the elements of the complex are realized by nouns in genitive case. But rank-shift at q element shows a greater variety:

25. nominal group rank-shift

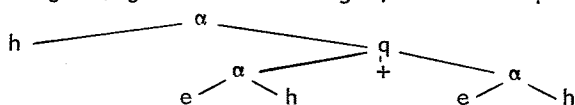
ænig þæra þinga þe gedwolgoda broht bið... (30)



("any of those things which are brought to false gods...")

26. group-complex rank-shift

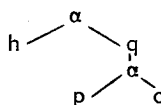
oferhogan...godcundra rihtlaga 7 cristenra þeawa (148)



("despisers...of just religious laws and Christian virtues")

27. prep. group rank-shift

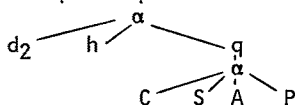
an æfter anum (90)



("one after another")

28. clause rank-shift

þæne brærl þe he ær ahte (107)

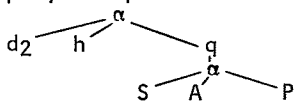


("that slave which he previously owned")

Realization of nominal group rank-shifts at q is limited to noun-headed and determiner-headed groups, and the group-complex cited is the only example in SL of such a structure at q. However, the clauses rank-shifted at q show several different realizations:

29. relative clause

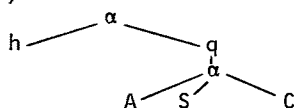
þa yrmða þe us on sittað (18)



("the miseries that oppress us")

30. þæt clause

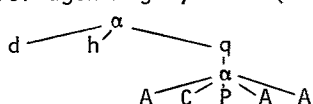
nyðbearf...þæt he Godes lage... (24)



("the necessity...that he heed God's law")

31. comparative clause

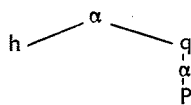
mare scamu...þonne us deð gelome
for agenum gewyrhtum (102)



("greater shame...than befalls us often for our own deeds")

32. inflected infinitive clause

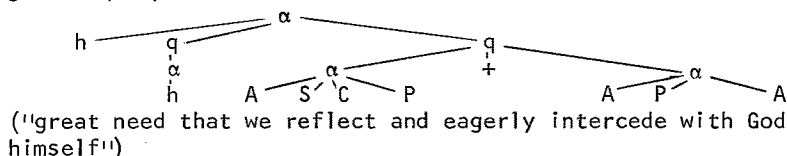
hrædest...to cweþenne (48)



("quickest...to say")

The last structural type at q, the multiple q element, represented by

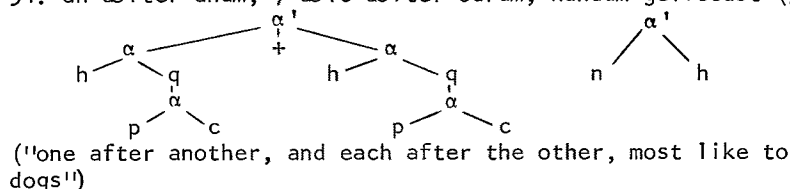
33. þearf micel þæt we us beþencan 7 wið God sylfne þingian georne (198)



is realized by various sequences. These include q element realized by word unit combined with q element realized by nominal group, q element realized by prepositional group combined with q element realized by word-complex, and q element realized by word unit combined with q element realized by clause, as in the example.

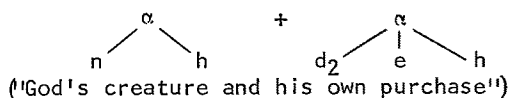
The final area to be considered in surface types is the range of group-complex structures. One example is a multi-layer type:

34. an æfter anum, 7 ælc æfter oðrum, hundum geliccast (90)⁴



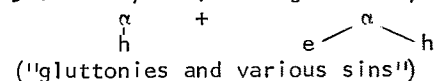
Of the single-layer types, some show multivariate structures (Berry 1975: 96-98) in all the elements:

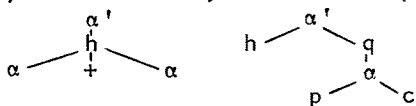
35. Godes gesceafta 7 his agenne ceap (92)



Others have one element without a multivariate structure, and this may or may not be realized by a word-complex:

36. oferfylla 7 mænigfealde synna (193)

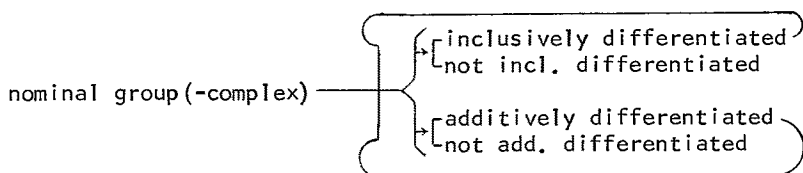


37. *tyne odðe twelfe, ælc æfter oþrum* (116)

("ten or twelve, each after the other")

Underlying the surface grammar just sketched is a system grammar which describes the functions of nominal groups and nominal-group complexes.⁵ The "experiential" function of the nominal group is the representation of information about extralinguistic reality. By contrast the "textual" and "interpersonal" functions are the representation of information about the context or co-text, and speaker/auditor roles respectively. The "logical" function is the representation of the ways in which categories of information derived from the other functions are related (cf. Halliday 1977/78: 128-133). The logical function of the nominal group(-complex) is to associate two categories of experiential, textual or interpersonal information, one of which has a logical priority: the logical "subject". The other category is contingent, and thus logically posterior: the logical "predicate". For example, attributes realized at e element are thus predicates to their subject attribuants realized at h element.

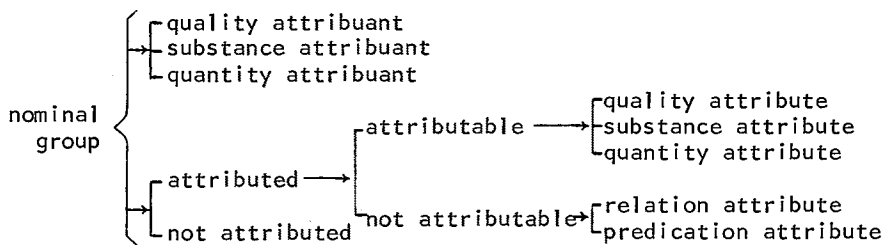
The logical predicate differentiates itself from its subject either "inclusively" or "additively". In inclusive differentiation the predicate is seen to represent a property of the subject. In additive differentiation, the predicate is only contingent on the subject. Attributes realized at e element thus represent inclusive differentiation, and the paratactic ordering of groups in nominal-group complexes represents additive differentiation. A predicate representing either differentiation may be realized by surface elements which also realize a logical subject. Thus choice of either form of predication implies potential for recursive choice of predication. This recursion permits either an inclusive or an additive differentiation of either an inclusively or an additively differentiating predication which has logically preceded. In fact the logically preceding predication may be simultaneously predicated of by both an inclusive and an additive differentiation. The system network which depicts these logical choices in the selection of nominal group(-complex) functions must show recursion with continuous loops:



An application of this recursive system network to the data of SL, with respect to the ordering of attributional and textual information only, reveals a range of selection expressions to a total of 29 different types.⁶

The major system network for experiential information in the nominal group is the attribution system network.⁷ Its basis is the pairing of "attribuant" and "attribute", which stand in the relationship of logical subject and logical predicate. Some nominal groups realize the category "attribuant" only, but the category "attribute" necessarily implies attribuant. Recursive combinations of these categories cannot be described until the system of logic is combined with the system network for attribution.

The pairing of attribuant and attribute can be seen as the product of two key systems. The first of these, the attribuant system, is a choice among three terms, quality, substance and quantity. Typical word-class realizations of these terms are adjective for quality, noun for substance and pronoun for quantity. The second system, the attribute system, is preceded in network by an initial choice between groups which are attributed and those which are not. Nominal groups which are attributed either show attributes whose exponents may also realize the attributants of further attribution ("attributable attributes"), or else show attributes whose exponents may not ("non-attributable attributes"). A further system dependent on the choice of attributable attribute is the three-term choice quality, substance and quantity. The system dependent on the choice of non-attributable attribute is the choice between relation and predication. Typical word-class realizations of these terms are adjective or adverb for quality attributable attribute, noun for substance, and determiner or adverb for quantity. Typical realizations of relation and predication are prepositional group and clause respectively. The system network for attribution takes the following form in notation:⁸



The typical realization in surface structure of the quality attribuant is by the adjective at h element. This may occur in

nominal groups either at normal rank or in rank-shift. As examples SL shows:

38. to gridlease (40) 39. ful yfelan gewunan þætt menn... (152)

$$\begin{array}{c} \alpha \\ / \quad \backslash \\ r \quad h \end{array}$$
 ("too violated")

$$\begin{array}{c} \alpha \\ / \quad \backslash \\ e \quad h \quad q \\ / \quad \backslash \\ r \quad h \end{array}$$
 ("a very evil practice that men...")

Atypical realizations of the quality attribuant in SL are restricted to occurrences of comparative and superlative forms of adjectives, which are classed in surface grammar as determiner words. Unlike adjectives in the positive degree of comparison which may realize an unattributed quality attribuant, these determiners always realize an attributed attribuant. The necessary attribution is a quantity, and the word which realizes the attribution is the same comparative or superlative form which realizes the attribuant. When a comparative or superlative form at h element in the surface structure of a nominal group colligates with a modifier element, then the nominal group is already recursive in its attributions. These examples in SL show multiple attribution of the same attribuant:

40. eac mænigfealdre (97)

$$\begin{array}{c} \alpha \\ / \quad \backslash \\ r \quad h \end{array}$$
 ("more various besides")

41. hundum geliccast (90)

$$\begin{array}{c} \alpha \\ / \quad \backslash \\ n \quad h \end{array}$$
 ("most like to dogs")

In the first of these examples, the attribuant is attributed by both quality and quantity attributes, the first realized by eac ("besides"). In the second example, the first attribute of the attribuant is a substance, realized by hundum ("dogs"), and the second is a quantity. The recursion of attribution in these groups cannot be handled until the system network for attribution is integrated with the system network for logic.

The substance attribuant is typically realized by the noun word at h element. But this attribuant is also realized in SL by items from the adjective or participle word class. This atypical realization corresponds to the traditional category of non-substantive items used "substantively".

The typical realization in surface structure of the quantity attribuant is by pronoun word item at h element. The function of pronoun realizations is much more phoric than experiential, but they are quantitative in the sense that they represent entity, even though there is no other experiential character of that entity conveyed except number. Atypical realizations of the quantity attribuant in SL include determiner and adverb words at h element; some determiners, in comparative and superlative forms,

may occur as attributants at d element, and adverbs may even realize attributant at r element. Several determiners are primarily phoric in function like the pronouns (e.g., se/seo/þæt ("the/that"), þes/þeos/þis ("this")). But also like the pronouns, they represent quantity when occurring at h element--another instance of the traditional concept of the "substantive" use of non-substantive items. Comparative and superlative forms of adjectives are the only determiners occurring at h element which need not represent quantity attributants, unless of course they themselves were also to be attributed appropriately at modifier elements. If not, they are quality attributants only, quantitatively attributed; or else they could be substance attributants, quantitatively attributed. Comparative and superlative forms of non-adjectival determiners at h element would represent quantity attributants regardless of attribution. Examples of determiner as quantity attributant in SL usually show positive forms at h element, and comparative/superlative forms at modifier elements:⁹

42. *ænig þæra þinga þe gedwolgoda broht bið...* (30)

h ——— α ——— q
("any of those things which are brought to false gods...")

43. *mæst ælc* (69)

d — α — h
("almost everyone")

44. *mare scamu...þonne us deð...* (102)

d — h — α — q
("greater shame...than befalls us...")

Adverbial realization of a quantity attributant occurs in a recursive structure, that is, when the adverb first realizes a quantity attribute. In SL this is as the attribute of a quality attributant, realized by adjective, or as the attribute of another quantity attributant, realized by determiner. In the first example below, the q element in the surface structure is actually postmodifier to the r element, not the h element:

45. *swa strange...þæt oft on gefeohte an feseð tyne...* (114)

r — h — α — q
("so strong...that often in battle one drives away ten...")

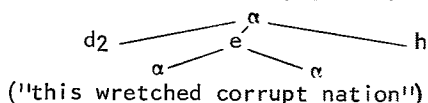
46. *ealles to mænege halige stowa* (81)

d — α — e — h
r — α — h
r — α — h
("entirely too many holy places")

Besides their typical realizations, the five types of

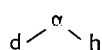
attribute show a limited range of atypical realization in SL as well. The quality attribute is usually realized by adjective and adverb items, at elements e/q and r respectively. But SL also shows such attribution realized at e element by participles and at d element by a comparative:

47. þysse earman forsyngodan þeode (175)



('this wretched corrupt nation')

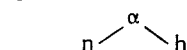
48. wyrsan dæda (196)



('worse deeds')

The substance attribute is normally realized by noun words at n/q element for all attributants, usually in genitive but sometimes in dative case. In SL, atypical realization of this attribute is restricted to the adjective, occurring at n element:

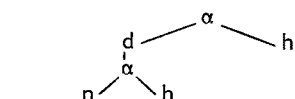
49. ricra reafiac (188)



('spoliation by the strong')

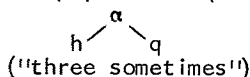
The quantity attribute is usually realized by determiner and adverb items. The determiners typically realize d/q elements in structure; but in the case of comparatives and superlatives, even h element serves as a realization of quantity attribute, insofar as all comparatives and superlatives are inherently attributed attributants. Adverb items realizing quantity attribute are usually at r element. Atypical realizations of quantity attribute in SL include the occurrence of a determiner word at n element, of an adverb word at q element, pronouns at n element and the distribution of the determiner *fela* ('much/many') at h element. What is atypical about *fela* at h element is its realization of attribute with an attributant realized at q element, or even at n element; the reverse of the normal pattern of attribute-attributant realization in surface structure. Of course *fela* also appears conventionally at d element in Old English, and sometimes, as in SL, at q element.

50. ealra maest hlafordswice (74)



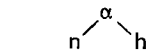
('the greatest treachery of all')

51. þry hwilum (124)



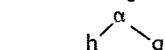
('three sometimes')

52. ure ænig (64)



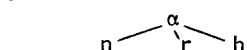
('any of us')

53. fela geara (9)



('many years')

54. unrihta to fela (11)

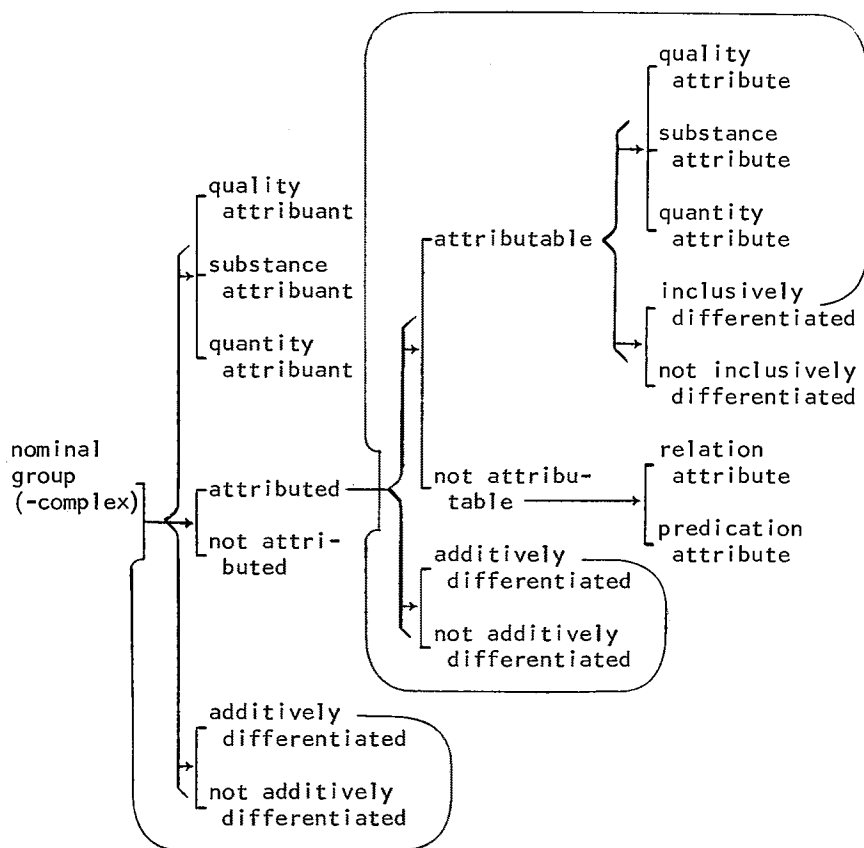


('too many injustices')

The remaining attributes, relation and predication, show no

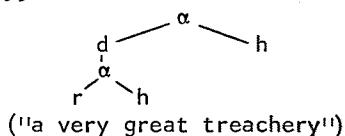
atypical realizations although the surface structures of prepositional groups and the types of clauses show some variation.

In order to achieve an integrated description of the Old English nominal group in both its logical and attributional features, a combined system network for logic and attribution is required:



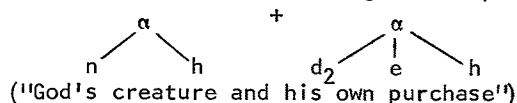
It is now possible to present a complete description of a SL nominal group in terms of all surface and systemic features previously listed with a combined tree diagram and selection expression, as in the following examples:

55. ful micel hlaforðswice (75)



[substance/attributed; [attributable: [quantity/inclusively:
[attributable: [quantity/not inclusively] /not additively]]/not
additively] /not additively]

56. Godes gesceafte 7 his agenne ceap (92)



[substance/attributed; [attributable: [substance/not inclusively] /not additively] /additively: [substance/attributed:
[attributable: [quantity/not inclusively] /not additively] /not
additively]]

FOOTNOTES

¹Useful accounts of the development of and the most general concepts of systemic grammar, usually with modern English as data, can be found in Kress (1976: vii-xxi) and Butler (1979). The latter has an extensive bibliography.

²All citations of text are from Whitelock (1963) with replacement by g and w of the corresponding Old English characters.

³In general, all examples selected are the earliest occurring in SL, regardless of previous citation. However, single-word realizations and the following atypical cases have been avoided when possible: interrupted groups, fela, rank-shifts, segments of complexes, se be relatives and ambiguous realizations. The line number follows each citation.

⁴The α ' notation represents appositives (Berry 1975: 99).

⁵The approach to system taken here is non-generative and 'poly-systemic', a concept derived by Halliday from the work of Firth (Butler 1979: 71). That is, particular systems can be treated independently within the context of particular syntagmatic environments (Halliday 1956/1976: 45; 1961/1976: 56; 1966/1976: 96-97; pagination here and elsewhere to the later version). Contrasting developments in systemic procedure have been elaborated, chiefly by Hudson (1971, 1976).

⁶Thus an appropriate selection expression for Ful earhlíce laga 7 scandlice nydgyld (108, 'very cowardly laws and shameful tributes') would read [inclusively: [inclusively: [not inclusively/ not additively] /not additively] /additively: [inclusively: [not inclusively/ not additively] /not additively]].

⁷The other important system network for experiential information deals with number.

⁸Application of this system network yields 18 different selection expressions, all of which are realized by nominal groups in SL. Thus lytle getreowþa (10, 'few loyalties') yields [substance/attributed: attributable: quantity].

⁹Exceptions in SL include laes (115, 'less'), ma (116, 145, 'more').

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III

STRATIFICATIONAL GRAMMAR

ENGLISH IDIOMS, 'FUNKTIONSVERBGEFÜGE' AND FREE
CONSTRUCTIONS: THEIR DELIMITATION
IN STRATIFICATIONAL GRAMMAR

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1. INTRODUCTION

Idioms such as spill the beans, pull (someone's) leg, hot potato, let on, blackmail, hammer and tongs and 'Funktionsverbgefüge' (FVG) like give a nod, have a chat, do an imitation, come into use, put (something) in jeopardy and be under investigation share syntactic and semantic peculiarities which distinguish them from free, syntactically homonymous constructions. Idioms and FVG are both transformationally defective, and they appear to be more or less fixed phraseological realizations of unitary mental concepts, since they can frequently or even regularly be replaced by simple elements of the English language and/or other languages. It may have been these common peculiarities that led various authors, grammarians and lexicographers, to associate FVG with idioms (e.g. QUIRK et al. 1972: 356; WOOD 1964), or even to subsume them under idiomatic expressions, as far as prepositional FVG are concerned (e.g. WOOD 1967; COWIE/MACKIN 1975).

This paper argues in favor of a stratified semantic analysis of idioms and FVG that theoretically defines them as disparate semantic constructs and distinguishes both from free constructions. The approach is illustrated by non-prepositional FVG and bilateral phrasal idioms, i.e. idioms where in contrast to unilateral idioms such as white lie, bookworm and bone of contention both constituents deviate idiosyncratically from their normal meaning. It is, however, maintained that the approach can be adjusted with no substantial modification to integrate the prepositional FVG and all other types of idioms.

2. BISTRATL SEMANTICS

A recent publication of mine (MÖLLER 1978) was concerned with the following constructions and their interrelationship:

Jane gave her attractive smile
Jane smiled attractively
Jane smiled her attractive smile
Jane flashed her attractive smile.

It was concluded that the logical equivalence holding between the first sentence, which employs a FVG, and the other constructions and simultaneously their semantic nuances and the syntactic peculiarities of FVG could only be sufficiently explained if a general distinction was drawn between a level of semantics that has a validity for presumably all natural languages and a separate semantic level peculiar to each individual language. The only current model of linguistic description which provides for such a

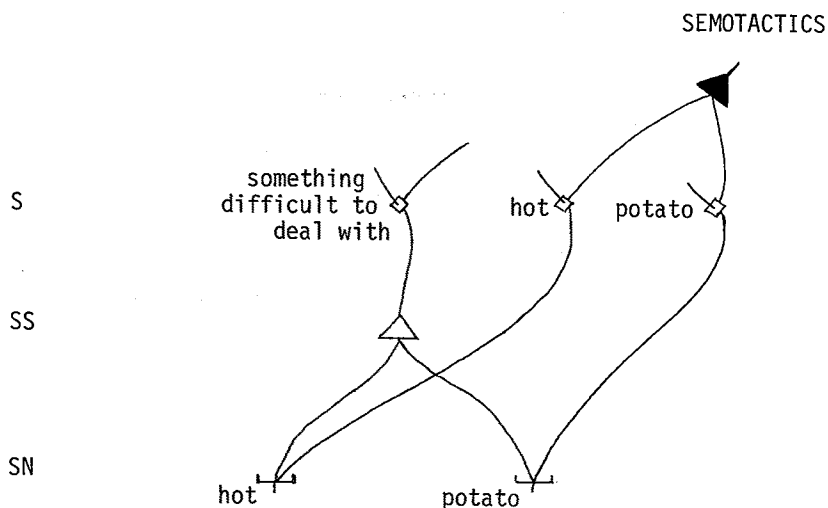
two-level semantic approach appears to be stratificational grammar (cf. LAMB 1966: 18, 20; 1970: 217-21; LOCKWOOD 1972: 165-74). Here the uppermost stratum, the gnostemic stratum, describes the semantic structure of texts and those universal semantic phenomena which pertain to a kind of natural logic underlying all human languages, while the next lower stratum, the sememic stratum, reduplicates the distinctions of the higher stratum as far as these are within the scope of a proposition, and may incorporate those subtler, language-particular distinctions which have no bearing on the truth value of the proposition. The existence of such a partially independent level for each individual language is well in accordance with the SAPIR-WHORF hypothesis and has always been presupposed by studies in semantic fields. More recently and outside the context of stratificational grammar, such scholars as D. BOLINGER (1977) and W. CHAFE (1970; 1971) have underlined the importance of taking into account language-particular, non-truth-value-influencing semantic subtleties in any linguistic study that does not merely concern itself with phonological aspects or certain morphologic phenomena. It has been more or less an intuitive insight of the stratificationalists that the syntax and semantics of an individual language can most exhaustively be described when two semantic strata are established in the theoretical model. The adequacy of this view is supported by G. LEECH who, independently of the development of stratificational grammar, proposes a similar bistratal semantic approach to natural languages (1974: 263-90).

It is my belief that, not only in the description of the distinctions between FVG and the above-mentioned equivalent constructions, but also in the theoretical delimitation of FVG, idioms and free constructions bistratal semantics is descriptively more powerful than any form of cognitive semantics that is merely based on the truth-value criterion and thus establishes paraphrase relationships which prove to be spurious from a more refined semantic point of view 1).

3. THE ANALYSIS OF IDIOMS

Most authors who have dealt with idioms in the framework of formal linguistics define an idiom as a polymorphemic lexical unit whose meaning cannot, or can only partially, be explained from the constituent morphemes, and thus agree that idiomaticity is primarily a semantic phenomenon. Stressing the communicative aspect of an idiom--that it may mislead or disinform a listener not familiar with the idiom--A. MAKKAI explicates the idiomaticity of the expression kick the bucket as a composite realization and formalizes its potential erroneous decoding toward a literal interpretation as a diversification in the sign pattern of the lexemic stratum (1972: 122, 151). Various arguments, however, support the view that the idiomaticity of such expressions is to be explained in the next higher stratum and that what has been dubbed the First Idiomaticity Area (MAKKAI 1972: 117) must be relocated in the sememic stratum. Diagram (A) may exemplify this by the analysis of hot potato 2).

(A)



The idiomatic sememe glossed as 'something difficult to deal with' is realized via the semons hot and potato. These are simultaneously the realizations of a free sememic construction representing the literal meaning of the idiom. In terms of a speaker-oriented process grammar, W. CHAFE (1970) described the relationship holding between an idiomatic sememe and its semons as the literalization of an idiom, i.e. the reversal of the diachronic process of idiomaticization. He adduced various convincing arguments for the descriptive adequacy of literalizing idiomatic semantic units in a synchronic language model (43-49, 68 f., 265-67). These are equally valid for the relational reinterpretation of the process in stratificational grammar. So they need not be repeated here; but let me summarize that with idioms their resistance to partial substitution, pronominalization, expansion and their frequent irregular behavior toward passivization and other transformations is largely explainable by their unit status and valency in the sememic stratum. An idiomatic sememe, *qua* sememe, is indivisible and can only be manipulated globally by the semotactics, or, in the case of a verb-phrase idiom, only an idiomatic sememe which is a two-place predicator may form a passive, as is evidenced by John's leg was pulled by everybody which in contrast to The bucket was kicked by John retains its idiomatic interpretation aside from the literal meaning.

Not only can many syntactic irregularities of idioms be naturally explained if the First Idiomaticity Area is located in the sememic stratum, but other problems which arise from its position in the lexemic stratum are solved without much difficulty. One such problem concerns the integration of discontinuous idioms such as sweep (something) under the rug and clip (someone's)

wings, another is posed by the description of syntactic operations that can be performed on idioms. Among other things, the lexemic stratum accounts for the surface phrase-structure of sentences by means of an ordered relational description; lexemes are the units of this stratum and the ultimate constituents of its tactics (cf. LOCKWOOD 1972: 97-126). When in accordance with MAKKAI's approach all the idioms of the First Idiomativity Area are defined as unitary lexemes, i.e. syntactically indivisible elements, then the lexotactics will fail to integrate discontinuous idioms, for it is unable to describe the position of the non-idiomatic variable element between the idiomatic constituents. The rather extensive class of discontinuous idioms pose, however, no great problem for the description if we allow the lexotactics to manipulate the constituent parts of multi-word idioms and if discontinuous idioms are seen as a special class of idiomatic sememes which require that one or more of their argument sememes be interposed as lexemes between the lexemic realizations of the "literalized" semons.

Despite their frequent irregular syntactic behavior, many idioms permit of a certain amount of syntactic change while preserving their idiomatic interpretation. Let me just refer to the idiomatic and literal passive John's leg was pulled and mention such agnate structures as The actor took off President Carter and The actor took President Carter off where the verb-particle construction take off retains its idiomatic reading 'to imitate'. In the stratificational system the lexotactics provides an integrated relational description of agnations under the conditioning control of the sememic stratum (cf. LOCKWOOD 1972: 142-59). Now, the same argument can here be invoked: if such idioms are defined as indivisible lexemes, the lexotactics is unable to specify the relation between agnate structures due to the inaccessibility of their constituent elements; in the case of an idiomatic verb-particle construction not even such a simple operation as the particle shift could be described. To relegate that description to the morphemic stratum will not only run contrary to intuition but imply gross inconsistencies within the whole stratificational system. If idioms belonging to the First Idiomativity Area are conceived of as unitary sememes that are realized via literal semons to yield complex lexemes which in the case of multi-word idioms consist of separate lexemes, their constituent elements are just as easily amenable to the lexotactics as the constituents of free constructions.

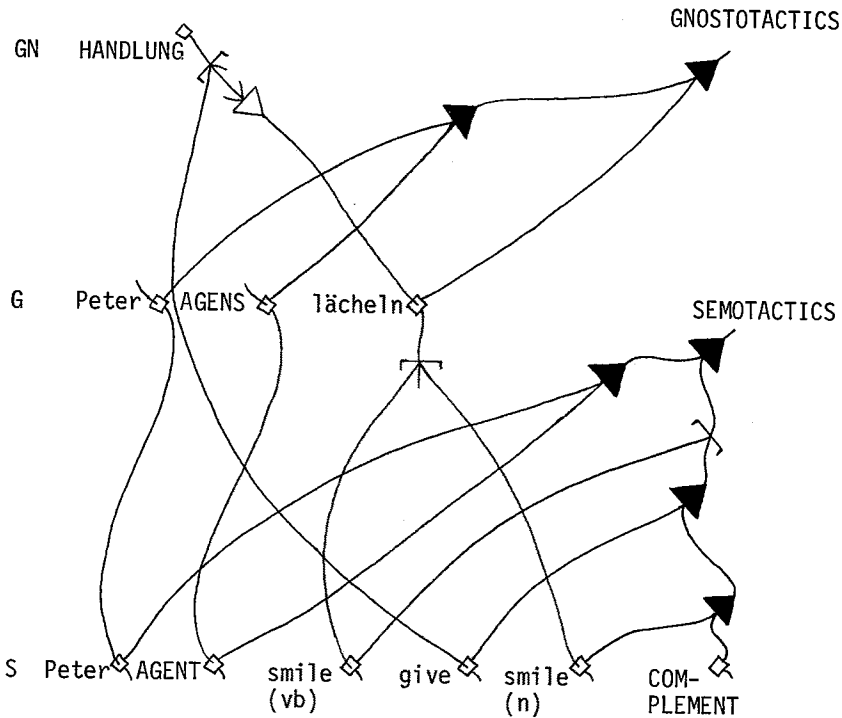
Before passing on to the analysis of FVG, it may be noted that unilateral idioms such as white lie and bookworm will permit an analogous description recognizing them also as unitary sememes and that the consequence of relocating the First Idiomativity Area in the sememic stratum is to place the Second Idiomativity Area of sentence idioms in the gnostemic stratum 3).

4. THE ANALYSIS OF 'FUNKTIONSVERBGEFÜGE'

In contrast to an idiom, a FVG such as give a smile is not to be defined as a sememe, but a construction of sememes which

realize a unitary, non-language-specific predicate gnosteme. Diagram (B) gives a simplified semantic outline of the paraphrastic sentences Peter smiles and Peter gives a smile, representing their common predicate gnosteme as the German translation equivalent lächeln 4).

(B)



From the OR-node of the semotactics one line leads to the verbal sememe smile and another to a tactic complex consisting of the function-verb sememe give, the function-noun sememe smile and a tactic sememe COMPLEMENT. This element is to be understood as a language-specific constant that formalizes the relation between the constituents of a composite semantic predicate; it also combines with adjective or noun sememes in the sememic structure of English copulative sentences. The function-verb sememe give is a simple realization of the gnostemic primitive HANDLUNG 'action', and it contains no other cognitive component. This gnoston is simultaneously one of the components of both the verbal sememe smile and its nominal counterpart 5).

On account of the interdependency between the gnoston HANDLUNG and the case sememe AGENT, active sentences in which FVG with give appear have agentive subjects. FVG with the verb get such as get permission, get a surprise and some types of FVG

formed with have and take like have a dream and take delight (in) are constructed with non-agentive subjects. For these function verbs other gnostons of general content will have to be provided, interacting with other case sememes of their logical subjects.

I will not go into the several advantages the bistratal, relational analysis of the above sentences offers over any process approach (cf. MÜLLER 1978: 119-22), but want to cite some syntactic phenomena that support this semantic approach. One such phenomenon concerns the pronominalization of the function noun. While the constituents of an idiom can almost never be pronominalized, a restriction which is readily deducible from its semantic unitary status, the pronominalization of function nouns by it or them is less severely restricted. In stratificational grammar, co-reference of nominals is explicated in the gnostotactics by means of an upward AND-node above the gnosteme that functions as a recursive argument in two or more predications (cf. LOCKWOOD 1972: 168, 170). Since a function noun, as can be seen in the diagram, is not the realization of an argument, but of a predicative gnosteme, the pronouns it and them very often cannot refer to a function noun. Being part of a predicative sememic complex, a function noun has only the status of a pseudo-argument and does not combine with a case sememe.

Another correlate concerns the syntactic operations known as conjunction reduction and gapping. Such transformations can only be applied to conjoined sentences if the verbs are used in the same sense. Thus they serve as heuristic devices for examining verbal polysemy. The strings John gave Mary a scowl, but then his billfold and Mary gave a charming smile and John twenty dollars are constructions to which these transformations have been applied. The unacceptability or at least oddness of such sentences formally bears out the assumption that the function verb give realizes a sememe which has an autonomous status vis-à-vis the sememe representing the basic meaning of the same lexeme. Among the various other submeanings of give, the specific feature of this sememe is its near-emptiness. While restricted pronominalization syntactically corresponds with the pseudo-argument status of a function noun, the general constraint on gapping and conjunction reduction correlates with the autonomous sememic status of a function verb.

Various other syntactic defects of FVG can be explained and described on the basis of this bistratal semantic approach. Yet the main syntactic validation it receives in respect of the analysis of idioms derives from its capability of accounting for the observation that in texts the function nouns are very often modified by adjectives and other adjuncts, whereas such expansions of idiom constituents seldom or almost never occur. Their non-expansibility corresponds with the unit status of an idiom in the sememic and the gnostemic stratum; with FVG, the rather unrestricted expansibility of the function noun, at least as far as non-prepositional FVG are concerned, is based on the semantic fact that the realize of a function noun is an individual, isolated

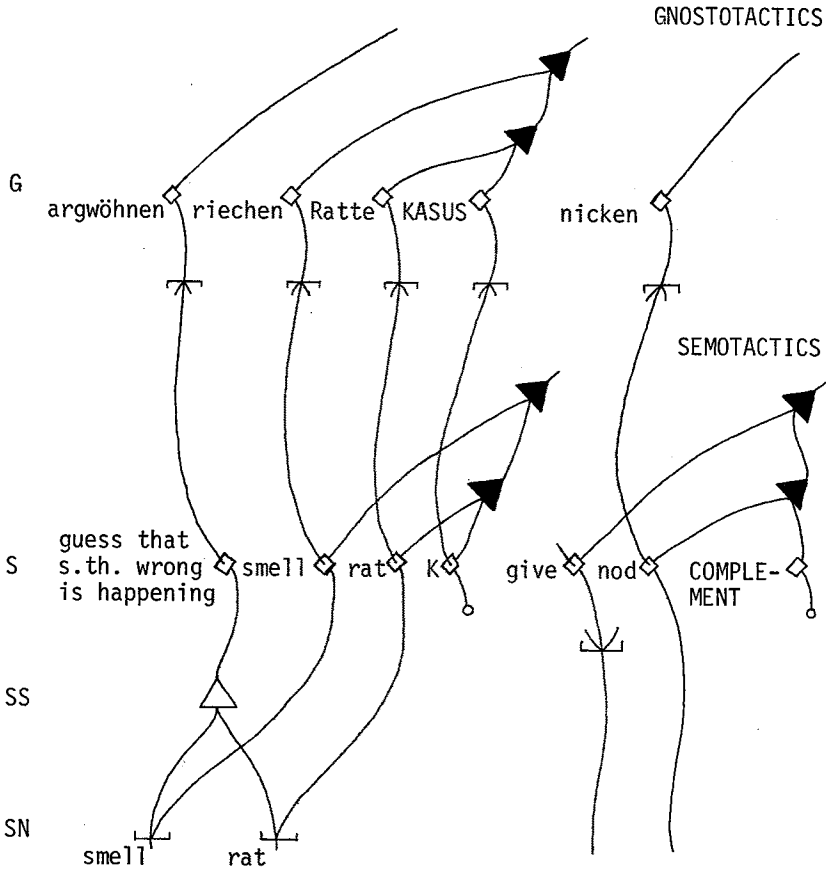
sememe which is readily accessible to semotactic modification.

The stratified analysis not only naturally provides for the description of an expanded FVG such as give a nervous smile, but on account of the word-class neutral conception of gnostemes, is able to relate it to the parallel verb-adverb construction smile nervously in a straightforward manner. Those subtler semantic differences that can be detected between a FVG and its equivalent constructions largely pertain to language-specific, non-cognitive semantics and are formalizable by means of upward AND-nodes positioned immediately above the sememes.

5. SYNOPSIS: IDIOM, 'FUNKTIONSVERBGEFÜGE', FREE CONSTRUCTION

By way of recapitulating the main points made in this paper, diagram (C) gives a synoptic analysis of the idiom smell a rat, the homonymous free construction and the FVG give a nod.

(C)



The idiomatic meaning of smell a rat is a sememe, here glossed as 'guess that something wrong is happening'. In the sememic sign pattern this sememe is realized via the literal semons smell and rat; these are simultaneously the simple realizations of the sememes underlying the free, literal construction 6). With regard to its semantic structure, the lexotactically parallel FVG give a nod differs from the idiom and the literal construction. Reflecting the frequent and rather regular substitutability and/or translatability of FVG and idioms by simple words, the FVG give a nod and the expression smell a rat on its idiomatic reading realize unitary gnostemes; these are glossed here by their German equivalents nicken and argwöhnen, respectively. Yet with the FVG there is no diversification and composite realization in the sememic sign pattern, and an erroneous decoding is thus forestalled. It is true, from the OR-node below the sememe give, which marks the diversification of the polysemous lexeme give toward its basic and various subsidiary meanings, a decoding may in principle take place toward a sememe other than the one representing the meaning of the function verb, but such a decoding almost never makes sense; with idioms, a decoding toward the literal meanings of the elements is in most cases meaningful. Contrary to an idiom, a FVG comprises a normal combinatorial function of the meanings of its constituents. The near-emptiness of a function verb is a special case of context-dependent polysemy. In stratificational grammar, polysemy is a matter of the lower sememic alternation pattern, whereas the idiomaticity of expressions belonging to the First Idiomaticity Area is a phenomenon in the sememic sign pattern.

The semantic differences between a FVG and a free construction are evident. A syntactically free construction is a semantic construction in both the sememic and the gnostemic stratum where the element representing the direct object is invariably connected with a case marker. A FVG, however, is only a semantic construction in the sememic stratum; the nominal sememe representing the function noun is not connected with a case sememe, but a relational constant COMPLEMENT. On account of their morphological structure, substitutability and the near-emptiness of their verb, FVG constitute one clearly delimited group within the class of phrases that in British linguistics have been labeled collocations 7).

NOTES

- 1) In addition, stratificational semantics may help to settle the dispute between the schools of generative and interpretive semantics. Both rival approaches are characterized by a strong bias toward the exploration of universal semantic categories and thus mainly deal with what stratificational semantics explains in the gnostemic stratum. Since the notational devices of stratificational grammar provide for a simultaneous description of the

encoding process and the decoding process, stratificational semantics rather elegantly unites the encoding approach of generative semantics and the decoding approach of interpretive semantics, which has recently again been advocated by KEMPSON (1977).

2) In our conception of the sememic stratum (cf. MÜLLER 1978: 66-80), a sememe defines the meaning or one of the meanings of a (simple or complex) lexeme, or it may belong to the closed class of functional semantic units which I term *tactic sememes*. A sememic sign represents the 'Gesamtbedeutung' of a lexeme, i.e. the general meaning that it has in isolation, while a *semon* symbolizes the meaning of the traditional morpheme. All the AND-nodes in this stratum, at least within the scope of a sememic predication, can perhaps be unordered. A sememe generally belongs to a specific word class.

3) We neither advocate WEINREICH's terminological distinction between idioms (i.e. bilateral idioms) and phraseological units (i.e. both unilateral and bilateral idioms, 1969: 42), nor do we approve of CHAFE's view that an idiom may also be monomorphemic when he defines the non-literal constituent of a unilateral idiom as a highly context-dependent semantic unit being idiomatic in its own right (1970: 44 'restricted idiom'). To characterize the contribution such a constituent makes to the meaning of the whole expression as a subsense of the morpheme (cf. WEINREICH 1969: 41f.) is also rather unsatisfactory in view of its restriction to a unique verbal context.

For the Second Idiomaticity Area, see MAKKAI (1972: 124-34).

4) In our system of the gnostemic stratum (cf. MÜLLER 1978: 56-66), a *gnosteme* is a mental concept defined independently of a particular language and neutrally toward word classes; in a predication it has either the function of a predicator or of an argument. *Gnostons* are semantic primitives, roughly equivalent to the cognitive and systemic components in componential analysis. Within the scope of a gnostemic predication, the AND-nodes of this stratum seem to be unordered.

5) A sememe for the indefinite article does not appear here, as it is expedient to regard indefinite as unmarked in the semantic dichotomy definite/indefinite (cf. CHAFE 1970: 186-88); in stratificational grammar, the indefinite article would be an element which the *lexotactics* determines.

6) See note 5 on the absence of a semantic element for the indefinite article. With an idiom like hit the sack, however, the element definite would appear as an obligatory semon, being the simultaneous realization of the tactic sememe DEFINITE which combines with the sememe sack of its literal interpretation.

7) For other collocation types and a Firthian view of idioms and

collocations, see MITCHELL (1975: 107-28). The term collocation (or perhaps phraseological unit; pace WEINREICH, see note 3) should be reserved for a multi-word subsentential construction which is more or less stereotyped but whose meaning, in contrast to an idiom, is wholly deducible from the senses of its constituent words.

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A STRATIFICATIONAL APPROACH TO DISCOURSE AND OTHER MATTERS

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In stratificational linguistics there have been several formal proposals for dealing with the organization of semantic information. One tentative proposal (Lockwood 1972; cf. also Lamb 1966 and 1970) includes a two-stratum semantics with a gnostological stratum and a semological stratum. Under this arrangement both strata have a tactic portion and a realization portion including alternation patterns with emes, signs and ons. The semotactics defines the notion 'possible proposition' and is largely characterized by unordered downward and nodes. The gnostotactics defines the notion 'possible text' and thus its uppermost node is a large downward ordered and node showing a temporally ordered sequence of predications in a discourse. Here, an individual text, or nonce discourse, is conceived of as a trace through the gnostotactics, and it is the gnostotactics which is assigned the task of providing the context for encoding and decoding discourse features, e.g., pronominal reference is conditioned by previous occurrence of a referent in the discourse (repetition). Nections within the gnostology (gnostemes or gnostons) are organized within the taxonomic hierarchy which furnishes the input to the semology in encoding.

In our recent work on discourse, we have come to doubt the utility of a separate gnostotactics. Particularly questionable is the large downward ordered and node as the initial node in a spoken text. There are a number of reasons for this. First of all, as we have argued elsewhere (Copeland and Davis Ms.; cf. also Chafe 1976), the conditioning contexts provided by the discourse categories Given, Recoverable, Some and New, which play a role in lexical and morphological expression, are based on the speaker's assessment of the addressee's state of mind at the moment of an utterance and thus do not depend totally on previous occurrence in the discourse. Anaphoric substitution can occur even if the referent has not been previously mentioned, as long as it is rendered Given by the extralinguistic context. Thus, to use Chafe's example, a speaker, on seeing the addressee looking at a picture on the wall, may comment 'I bought it last week' (Chafe 1976). From the context the speaker assumes that the addressee is thinking of the picture and can identify it. Semologically, the context Given can be expressed as a portmanteau of ^S/Consc/ and ^S/Ident/. We have found it necessary to distinguish a number of such portmanteaus in order to identify the range of discourse contexts which determine aspects of linguistic expression (Copeland and Davis Ms.).

The second reason for doubting the correctness of the initial ordered and in the gnostotactics is stronger than the first.

In spoken discourse (as against a written text), memory of the ordered propositions which constitute the putative 'text' is neither cumulative nor long-lasting. With the evolving nonce discourse the speaker/hearer does not retain in his consciousness earlier portions of a 'text'. Often he does not even remember the immediately preceding utterance, though he may retain the rough details in his episodic memory. Consciousness or attention is usually of short duration (without rehearsal or maintenance); and if speaker/hearer consciousness constitutes a major context within a discourse, then the large initial ordered and would seem inappropriate for characterizing spoken discourse. At most, it is suitable for describing the structure of a written or recorded text with 'stretched memory potential' where the details can be referred to without the usual constraints on consciousness and short-term memory. This is analogous to describing other gnostological concepts having sequentially ordered components, e.g. a dinner or a baseball game.

The third reason for questioning the initial ordered and node is that it is not necessary in a stratificational treatment of discourse. In order to show this, we shall in this paper outline an alternative. Here, we shall, at most, be able only to provide a general framework and attempt to demonstrate how it might function. First, there would be a full-blown semological stratum with its usual properties, including, for our purposes here, a semotactics and an upper alternation pattern for representing stratal discrepancy vis-à-vis the gnostology. The gnostology would consist of a structure (as in Figure 1) much of which is stored as long-term memory (cf. Davis and Copeland Ms.). In linguistic encoding/decoding, a nection in the gnostology would be accessed to the upper semological alternation pattern through a diamond node on the internal line of the nection (cf. Johannesson 1976). The semotactics would define 'possible proposition' and the alternation pattern between the gnostology and the semology would, among other things, fulfill the requirement for a two-stratum semantics (cf. Muller 1978).

Our major concern in this paper is the gnostology, because it is largely within the gnostology itself that discourse is accomplished. The basic structural unit of the gnostology is the nection. Earlier stratificational versions of the taxonomic hierarchy as represented in Lamb 1970 and Lockwood 1972 contain nections having an upward and node above the internal line and a downward or node below the internal line. Recently both Lamb (Ms.) and Johannesson (1976) employ upward ors and downward ors, respectively. You will notice in Figure 1 that we have used the and/or node (introduced in Reich 1968) both above and below the internal line of a gnostological nection, and this will require explanation. Recent work indicates that the elaborate taxonomic hierarchies constructed by cognitive anthropologists may make incorrect claims. Randall (1976) has shown that the transitivity one would expect from such a representation is not always present; if X is a Y and Y is a Z, it is not necessarily the case that X is a Z. Others

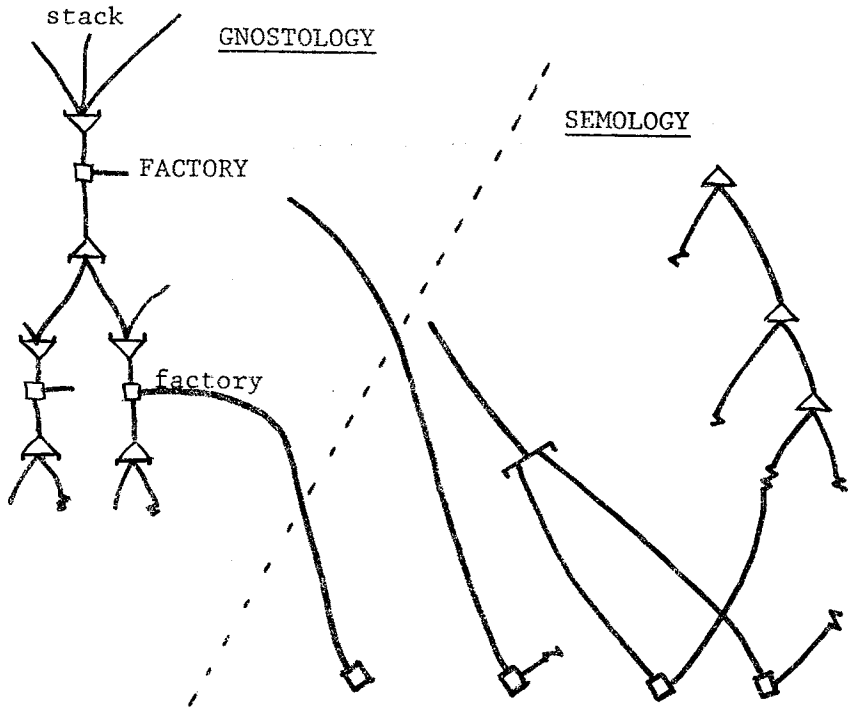


Figure 1

(e.g. Berlin 1972:59-65) have shown a continuous phenomenon which is unpredicted by a taxonomic hierarchy alone; if both A is a C and B is a C, sometimes A may be more a C than B is. Finally, Kintsch (1974) has argued that what is called 'semantic' memory (as opposed to 'episodic'), viz. the contextless knowledge underlying such statements as Robins are birds is predicational in nature (cf. also Tyler 1978:238 et passim). It appears that the knowledge which is stored in the gnostology is continuously and simultaneously present. It is the manipulation and accession of this knowledge that shows selection. Also, study of what is frequently called "attention" has shown that, while attention seems to have the effect of selecting, it is also the case that non-attended stimuli are recorded; they are not filtered out. The activation of one portion of the gnostology does not preclude activation of any other portion (Posner and Snyder 1975). There appears, then, to be no either/or presence of such knowledge; rather, it is or it is not accessed. Yet we do not talk about all things, nor are we aware of all things, at the same time---hence, the or component of the and/or relation in the gnostological section. The and/or node is intended to convey the possibility of selective accession, while not denying the presence of remaining external lines of the

nection.¹ The selective mechanism which is employed in the use and nonce organization of knowledge in the store is consciousness.

A predication may be viewed as the gnostological realize of a semological proposition. In a conversation the speaker's purpose is to bring the addressee to identify and access certain items of information stored in the gnostology and to modify it in some way. This is the traditional theme/rheme distinction within the predication. The performance of discourse thus involves the speaker's affecting changes within the gnostology of the addressee, either by way of activating (making conscious) nections already stored in the gnostology; of constructing nections with specified properties; or of establishing relations (connections) between such nections. Any given utterance may entail all three operations, but the minimal theme/rheme requirement for a predication is the establishment of a (nonce) relation between nections. A gnostological predication could thus be seen metaphorically as an instruction by the speaker for the addressee to activate/construct/connect nections in the gnostological store. Seen graphically, it is the lines connecting the nections in the gnostology that express the predicational relation. Also, it is a property of most discourse that it takes place within the context of the lower part of the gnostology, within the realm of individuals rather than of classes.

Now the speaker's instruction for the addressee to modify his gnostology will vary in its effect according to the discourse context. Let us assume that two people are sitting in the breakfast room having coffee, discussing the acorns on the oak this year. One of them notices a squirrel in the tree and says:

- (1) A squirrel is eating the acorns
(New)

Here, the referent squirrel occurs in a discourse context which we have called New (addressee non-conscious/non-identifiable).² When introducing a New referent the instruction by the speaker is roughly:

- (a) Activate (make conscious) the nection SQUIRREL
(b) Construct a nonce particular nection squirrel characterized by it
(c) Connect the nection squirrel to an already conscious nection complex is eating the acorns

This is shown graphically in Figure 2. Nonce discourse modified memory is represented by broken lines. The particular nection squirrel is New when it is introduced, but then becomes a part of the nonce discourse modified memory once introduced. Subsequently, the squirrel may be referred to again, and if this occurs within the bounds of a temporally variable consciousness, the referent may be indexed pronominally:

- (2) It is a male
(Given)

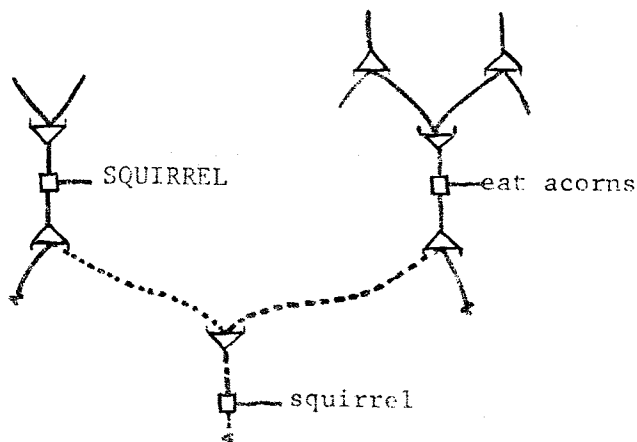


Figure 2

Such a context is what has been designated as Given (addressee/conscious-identifiable). In this case the speaker's instruction to the addressee includes:

- (a) Activate the nection male
- (b) Connect it to the already activated particular nection squirrel

Here the rheme does not involve the construction of a new particular nection, but rather only the connection of male to squirrel. In Figure 3 the notion 'already activated nection' is represented by the halo.³

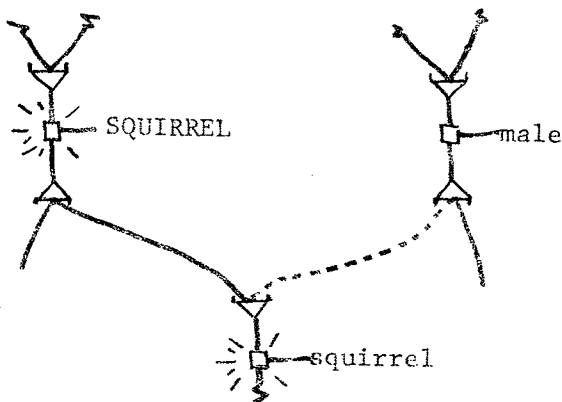


Figure 3

As nections are newly added, activated, modified or connected in a developing discourse, nections activated earlier are being displaced as conscious nections. If the conversation moves on to other matters, a nection may not be maintained in the conscious state. It does, nevertheless, remain in the gnostological structure as part of the episodic memory of that discourse, i.e., it remains identifiable. Utterance (3) would then be inappropriate in this context:

- (3) *It lives in the park down the street ...

What would be required is rather:

- (3a) The squirrel lives in the park down the street ...

Since the nection squirrel is non-conscious but identifiable, it must be marked lexologically as Recoverable and thus may not be referred to pronominally. Here, the speaker's instruction to the addressee includes:

- (a) Reactivate the identifiable nection squirrel
- (b) Activate the complex of nections lives in the park down the street
- (c) Connect the two

If the conversation now proceeds to:

- (4) One lives in my attic

the discourse context indicated is quite different from those we have discussed above in that it is more complex. The domain SQUIRREL is conscious, while the particular squirrel is non-conscious and non-identifiable. We have elsewhere called this context Some (Copeland and Davis Ms.). In a Some context the speaker's instruction to the addressee is:

- (a) Construct a particular nection squirrel characterized by the already conscious domain nection SQUIRREL
- (b) Connect it to the complex of nections lives in my attic

A Some discourse category is appropriate to a context in which a particular nection is constructed and characterized by a domain nection which is already conscious. Utterance (4) then results in the addressee's construction of a nonce, particular nection characterized by SQUIRREL, and the consciousness of this characterizing nection enables the construction of the second nonce, particular nection by referring to it initially with a pronoun like one. This is represented graphically in Figure 4.

Let us return briefly to Figure 1 and assume the following statements by A:

- (5) We visited a factory yesterday
- (6) The stack was smoking badly

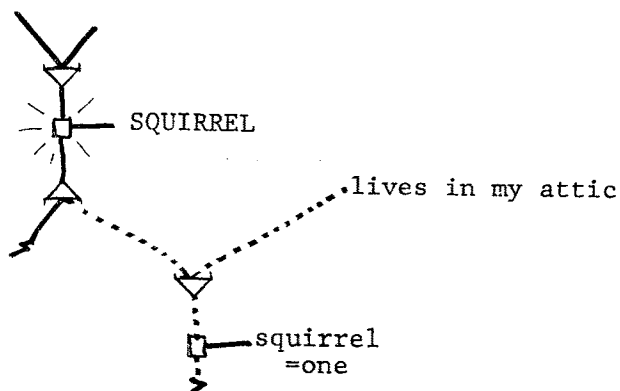


Figure 4

Text linguists, e.g. Dressler 1972, have raised but not answered satisfactorily the question of why terms like *stack* in such contexts are encoded using the definite article in English. The context provided by (5) is that the domain *FACTORY* is conscious, and as Figure 1 shows, *STACK* is an immediate property of *FACTORY*. The nection *STACK* is not conscious, and there is no reason for the speaker to assume that the addressee is thinking about this characterizing property of *FACTORY*. It is not Recoverable since it has not been previously mentioned in the discourse. Adapting Clark and Haviland's (1977) term "computability" we will call such a context Computable. It appears that an immediate property of a conscious domain may appropriately be treated as Computable (identifiable/non-conscious) if in the speaker's judgment the necessary information for decoding is available to the addressee from the gnostological store (long-term memory) itself. Typically, Recoverable and Computable are realized by the same semological portmanteau, though the two contexts are gnostologically quite distinct.

In summary, we return to our original proposal for a two-stratum semantics with a single tactic pattern. The semotactics functions to specify the event and participant role relations in a proposition, while the gnostology, consisting of a hierarchy of nections with *and/or* nodes above and below the internal line, functions as the seat of information upon which consciousness and memory operate to effect discourse. There is no separate gnostotactics as such which governs this process within the cognitive structure. The constraints on cognition are not describable in terms of tactic patterns but rather in terms of limitations on memory, both temporal and quantitative.⁴ The determining context for discourse is not the position of an utterance among other utterances, as in the text linguistics approach, but rather the state of a concept (gnostological nection) within the immediate consciousness, episodic memory or long-term memory.

Footnotes

¹Also the and/or relation in the gnostology appears to be more easily reconcilable with developments in Gestalt linguistics (cf. Anttila 1977). For some suggestions on the complementary features of stratificational theory and Gestalt linguistics, see Christie Ms.

²Cf. Davis and Copeland Ms. for a discussion of the distinction between Given/New and Theme/Rheme.

³We would like to reemphasize that our use of the term "conscious" differs from the purely psychological usage in that it here denotes 'speaker-assumes-addressee-is-conscious-of'.

⁴For detailed treatment of the issues involved in memory, see Craik 1979 and Baddeley 1976.

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STATUS DISCRIMINATION BY THIRD PERSON TITLE REFERENCE

The Second Foundation*

Michigan Health and Social Security
Research Institute Inc.
and
Michigan State University

0. Introduction

In our paper presented at the 1978 LACUS Forum, we attempted to account for the use of forms of address as exhibited by members of a research unit in the National Institute of Mental Health (The Second Foundation 1979). That work dealt primarily with the use of first names or the title "Dr." It was shown that the use of address forms is closely associated with administrative subgroups within the research unit.

The fact that titles and other forms of address can serve to establish deference or familiarity between members of a conversation was also briefly discussed in that paper. In this paper, we will again examine data gathered by the female co-author during her term at the National Institute of Mental Health, and a relational network description will be given of how status differences between the participants in a speech act can be marked by the form of address used to refer to third persons.

It should be admitted at the outset that our analysis suffers from the fact that it is "idiosyncratic," that is, it is described from the point of view of one individual. Hence it is not fully generalized for every possible pairing of individuals in the research unit observed. That is obviously the next step to be taken in our work, but unfortunately one which must await further research. It is hoped, nonetheless, that the present treatment will prove interesting enough in its own light to warrant our attention.

1. The Data

Our data are taken from an incident which involved the female co-author. The following dialogue has been abstracted from an actual conversation; nothing concerning the use of titles or first names has been changed except that substitutions have been effected to protect the proverbial innocent.

- Dr. X: Oh, have you been at the staff meeting?
Dr. Nall: Yes, I've just come from there.
Dr. X: I heard that Dr. Y was going to be absent. Did Dr. Z preside then?
Dr. Nall: Yes, Ed was at another meeting so Walter took over.

The use of the title "Dr." in this conversation was interpreted as a subtle put-down of Dr. Nall both by herself and by another party who overheard it. The reason for this is that Dr. Nall and Dr. X were peers in terms of the administrative structure of the research unit, and the custom among peers was to refer to superordinates by first name, the superordinates being Drs. Y and Z in this case. The title "Dr." as a third person reference was characteristic of Professional Staff-Support Staff interactions, which is a fancy way of saying that when talking to the secretaries in the unit, the professional people referred to each other and to the Section Head with the title "Dr." The result is that in using "Dr." to talk about other professionals, Dr. X inferred that Dr. Nall was not a bona fide member of his peer group and was more properly addressed with a speech pattern used with underlings.¹

To counter Dr. X's attempt at denigrating her status, Dr. Nall responded by referring to the third persons with their first names, indicating that she was indeed Dr. X's peer and was thus entitled to produce and receive the speech patterns characteristic of their group.

With this account serving as background, let us now examine a relational network formalism of the relationships underlying the data.

2. A Relational Network Approach to Third Person Title Reference in the Data

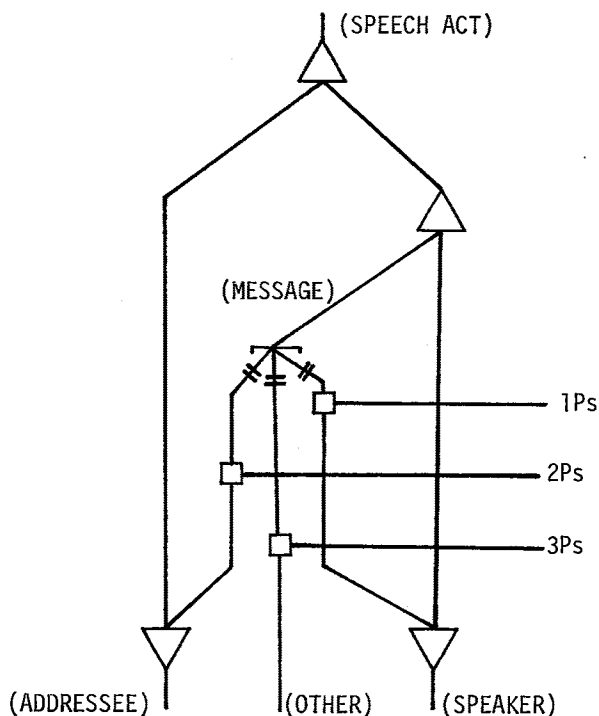
In his work on the English modal auxiliaries, Johansson (1976) formalized a stratificational analog to speech-act theory; we have modified his treatment somewhat to arrive at the diagram in Figure 1, which represents the basic structure of a speech event.

The three main parts of a speech act are the SPEAKER, the ADDRESSEE, and the MESSAGE. In addition, the DIAMOND nodes which occur within the MESSAGE account for the origin of person elements; the first person element (1Ps), for example, indicates that a certain participant in the MESSAGE is identical with the SPEAKER in the speech event. Similarly, the second person element (2Ps) indicates that a participant in the MESSAGE is identical with the ADDRESSEE, and the third person element (3Ps) refers to other participants in the MESSAGE.²

To account for the relationships underlying our data, we must provide some mechanism which will ensure that when the SPEAKER is addressing another member of the Professional Staff, the first name may occur as the third person reference for all members of the research unit: Professional Staff, Support Staff, and the Section Head. In addition, if the speaker is addressing a member of the Support Staff, the title "Dr." may occur as the third person reference element. Again, it is important to remember that this diagram represents the situation from the point of view of a SPEAKER who is a member of the Professional Staff.

Figure 2 illustrates how Figure 1 can be extended to produce

Figure 1: The basic structure of a speech act.



Note: $\text{---}||\text{---}$ indicates omitted structure.

the proper results; the AND nodes at (a) and (b) provide control over possible third person reference elements. The node at (a) accounts for the case where the ADDRESSEE is a member of the Support Staff and the person being mentioned in the MESSAGE is either the Section Head or a member of the Professional Staff. In this situation, only line (c) can function, allowing the DIAMOND at (e) to produce an occurrence of the title "Dr."³

In like fashion, if the ADDRESSEE is a member of the Professional Staff, represented by the AND at (b), only line (d) can succeed, thus allowing an occurrence of the first name element FN at (f).⁴

An integration of Figures 1 and 2 will then account for the possible use of the first name or the title "Dr." among various members of the research unit. But what of the subtle put-down? Does it involve some strategy element which must be overtly provided for in the tactics, or is it an "extra-tactic" principle which merely controls patterns of activation? At the present, we prefer to include an overt specification of various strategies in the tactics. Figure 3 shows how Figure 2 can be modified to treat

Figure 2: Extension of Figure 1 to account for forms of address.

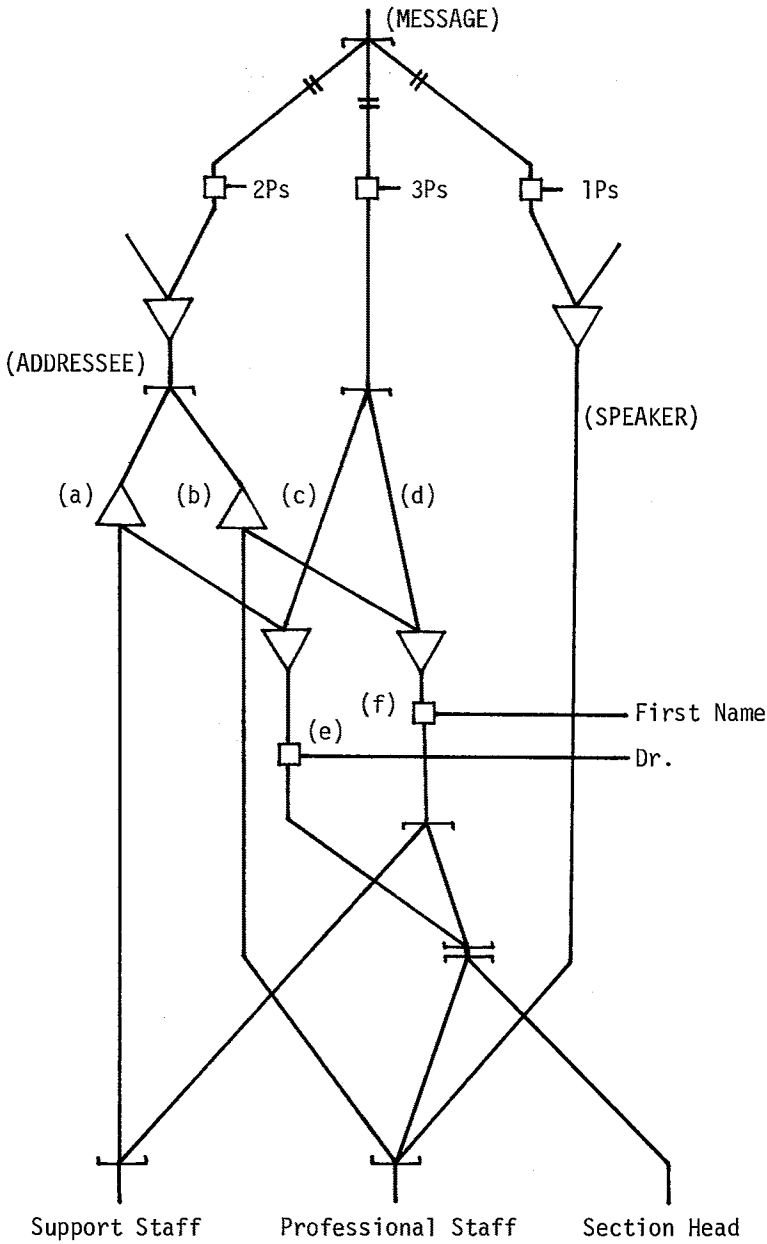
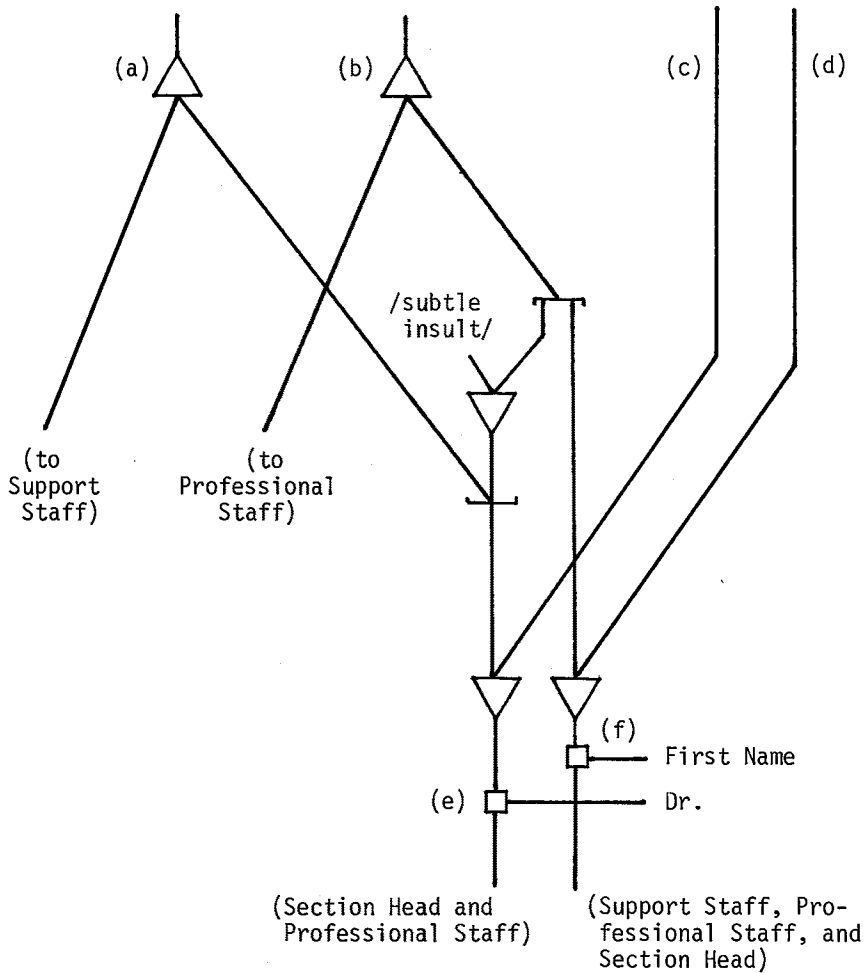


Figure 3: The realization of the strategy /subtle insult/ as a change in title usage.



the realization of a strategy of /subtle insult/ as the occurrence of the title "Dr." when a member of the Professional Staff is addressing another member of the Professional Staff.

This concludes our discussion of the system of relationships which underlies the data presented earlier. We would like to conclude our paper with a brief excursus into the sociology of power in organizations.

3. Organizational Structures and the Maintenance of Power

The structure of power and authority in an organization is maintained (not necessarily generated) by a stimulus-response system. Certain cues establish an individual as superordinate or subordinate, and subordinates who attempt to utilize the cues of dominance are running a risk. For example, Vener reports that in one study, blue-collar workers were found to ridicule anyone attempting to wear a white collar.³

This points out the fact that clothing has long been used to identify status relationships, and a person's manner of dress provides the observer with clues as to how an interaction may be structured. In a popular book, Molloy (1975) explains how a superordinate can utilize cues to enhance his or her authority, the cues in this case being related to clothing. He states that latent power exists in the structure of an organization, but the individual occupying a certain role must learn to activate that power.

The degree of structure in an organization can be inferred by the patterns of title use; surprisingly few sociologists have investigated the use of language in maintaining the structure and ideology of organizations, however. To be sure, the use of certain titles and other forms of address does not in itself generate power, it being rather a symbol or marker of power.

For example, in the National Institute of Mental Health, power is generated from above, and certain fairly strict rules concerning the use of first names and the title "Dr." have been observed. On the other hand, in a research unit attached to an organization where power is generated collectively through the election of officials by members, the use of first names is universal; despite differences in authority relationships among staff members, an ideology of equality is maintained by the pattern of address.

Individuals can, then, induce certain behavior in others through the manipulation of status cues, including linguistic cues. Since we are all associated with organizations in one way or another, it becomes very important to investigate how such manipulation takes place. In this paper we hope to have added in some small way to our stock of knowledge in this area.

NOTES

- * We would like to thank those participants in the 1979 LACUS Forum who shared their comments with us, both in the discussion period after our presentation and privately. Further comments will be gladly received at either of the following addresses:

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1. It is probably significant that Dr. Nall was the only female member of the Professional Staff in this research unit.
2. The issue of sex reference in the person system--'he' versus 'she'--will not be discussed here; neither will the problem of plural person elements. A detailed treatment of these two areas is a goal toward which we are moving, but space limitations preclude an explanation of our ideas for the present.
3. Personal communication from Dr. Arthur Vener, Professor of Social Science, Michigan State University.

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ASPECTS OF GRAMMATICAL NUMBER IN HOPI

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0. Introduction

Hopi, a Uto-Aztecan language of Arizona, distinguishes three categories of number in nouns: singular (SG), dual (DL), and plural (PL). Verbs, however, are inflected for only two categories, plural and non-plural, non-plural subsuming both dual and singular. Thus we have

<u>Hopi</u>	<u>Analysis</u>	<u>Gloss</u>
taaqa nöösa	man-SG ate-SG	'a man ate'
taaqavit nöösa	man-DL ate-SG	'two men ate'
taataqt nööñösa	man-PL ate-PL	'three or more men ate'

Pronouns are similar to verbs in that they show only a two-way distinction in number. To express the concept 'dual' in a pronoun, speakers of Hopi use the plural form of the pronoun with a singular verb:

<u>Hopi</u>	<u>Analysis</u>	<u>Gloss</u>
nu' nöösa	1-SG ate-SG	'I ate'
itam nöösa	1-PL ate-SG	'we two ate'
itam nööñösa	1-PL ate-PL	'we three or more ate'

In addition to being inflected according to the number of the subject, there is a class of transitive verbs which exhibit alternations conditioned by the number of the object:

<u>Plural Object</u>	<u>Non-plural Object</u>	<u>Gloss</u>
qöya	niina	'kill'
oya	tavi	'put'
maspa	tuuva	'throw'

This paper will provide a treatment of grammatical number in Hopi within a stratificational framework by discussing the semo-tactic, lexotactic, and morphotactic relationships which underlie the data.¹

1. Semotactic Relationships

Figure 1 shows a portion of the semotactics which is relevant to our discussion of number. It accounts for the structure of certain propositions. The label E_1 represents a class of events which have an agent, but no patient; E_2 is a class of events which have an agent and which may also have a patient. The two DIAMOND nodes represent the roles AGENT and PATIENT, and the upward OR below them indicates that in this simplified treatment both agents and patients may be accounted for by the structure presented in Figure 2.²

This second figure relates two structures to the part of the semotactics shown in Figure 1. One of these constructions may consist of any one of three person sememes--first person (1Ps), second person (2Ps), or third person (3Ps)--optionally accompanied by the sememe /dual/ or /plural/, singular being treated as the unmarked number. The second construction relates other participants (P) to /plural/ or /dual/, or to a number sememe.³ The personal pronouns evidently do not occur with numbers, for no sentences such as (1) or (2) have been attested, whereas sentences such as (3) are perfectly normal.

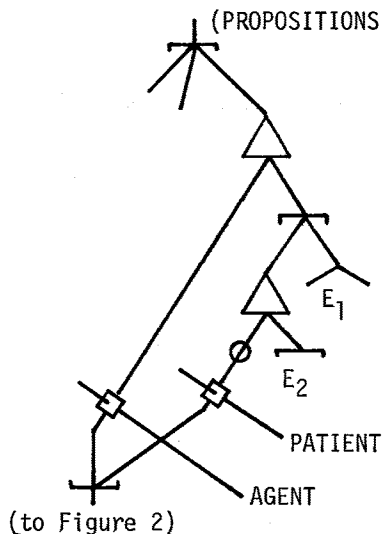
- (1) ?itam lööyöm nöösa.
 1-PL two ate-SG
 'We two ate.'
- (2) ?itam lööyöm taaqavit nöösa.
 1-PL two man-DL ate-SG
 'We two men ate.'
- (3) lööyom taaqavit nöösa.
 two man-DL ate-SG
 'Two men ate.'

Note, too, that the network in Figure 2 provides for the empty realization of DL with the number /2/, and of PL with numbers greater than two. That is, DL is automatically supplied as part of the realization of /2/; of course, DL may also occur by itself. Similarly, if a number higher than two is associated with a particular participant, the tactics automatically specifies an occurrence of PL.

Finally, Figure 2 allows a class of deictic sememes to occur with non-person participants. Thus we find phrases like (4), but none like (5). This is to be expected, since person sememes perform basically deictic functions in discourse, serving to identify speaker, addressee, and so on.

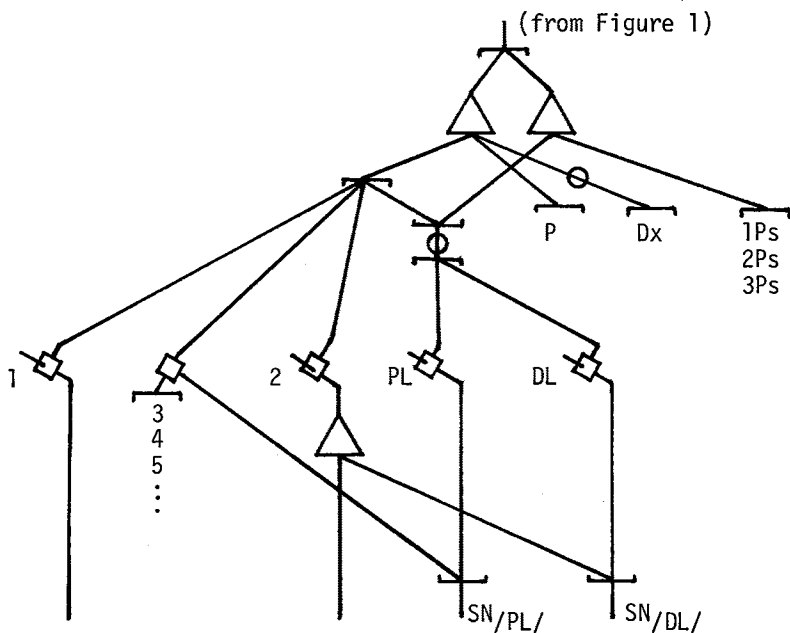
- (4) ima lööyöm taaqavit
 this-PL two man-DL
 'these two men'

Figure 1: Semotactic propositions with and without a patient.



Note: E_1 = events which cannot have a patient, E_2 = events which may have a patient.

Figure 2: A further fragment of the semotactics of Hopi.



- (5) *ima lööyöm itam
 this-PL two 1-PL
 ?

Let us now examine the lexotactic realization of the semological structures discussed so far.

2. Lexotactic Relationships

Hopi is basically an SOV language, as sentences (6) and (7) show. The subject, which has no overt case marker, occurs in clause-initial position, followed by an optional object in the oblique case, with the verb in clause-final position.⁴

- (6) taaqa wari
 man-SG ran-SG
 'A man ran.'
- (7) taaqa wuutit tuwa
 man-SG woman-SG-OBL saw-SG
 'A man saw a woman.'

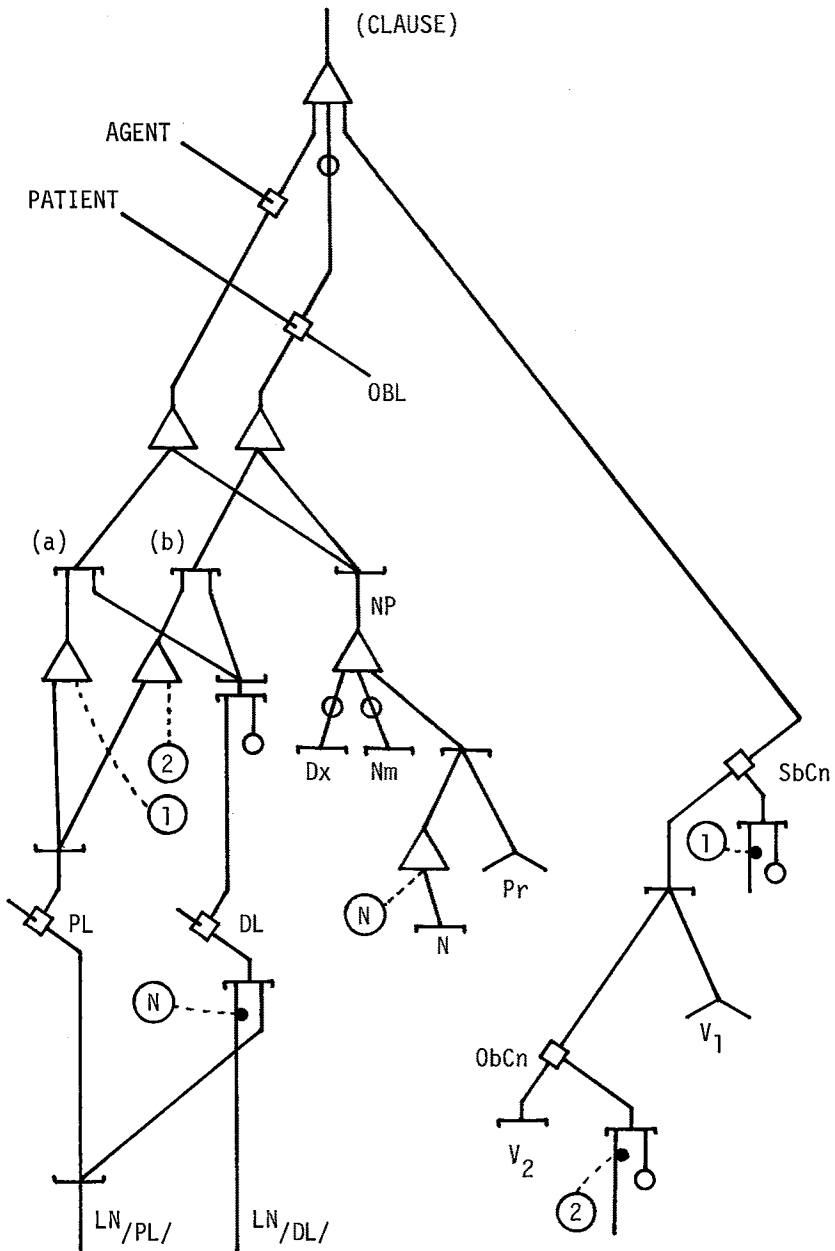
The lexotactics which will account for the data concerning number is depicted in Figure 3. Even though we are dealing with a relatively restricted set of data, the figure is fairly complex, and will bear a step-by-step explanation. Let us begin at the topmost ordered AND, which specifies the basic word order in a simple clause. The sememe /agent/ and its associated participant(s) are realized in clause-initial position. If there is a patient, it will come next; the four-way DIAMOND node specifies that the oblique case will occur over the whole object noun phrase. Compare sentences (8) and (9). The forms imuy and lõqmuy are the oblique forms of ima 'these' and lööyöm 'two', respectively.⁵

- (8) ima lööyöm taaqavit wari
 this-PL two man-DL ran-SG
 'These two men ran.'
- (9) nu' imuy lõqmuy taaqavituy tuwa
 1-SG this-PL-OBL two-OBL man-DL-OBL saw-SG
 'I saw these two men.'

In clause-final position occurs the verb. The upper DIAMOND indicates that the verbal lexemes are automatically accompanied by a concord marker (SbCn) which marks them as agreeing in number with the subject. Furthermore, there is a class of verbs which is automatically provided with another concord element (ObCn) controlled by the number of the object.⁶

The structures which specify the realization of these concord lexemes are shown at the left-hand side of the diagram. Notice that it is necessary to keep the subject and object separate for

Figure 3: The lexotactic realization of number.



purposes of conditioning verb agreement, but that the same noun phrase structure (NP) can serve in either of these functions. The internal structure of the noun phrase is fairly uncomplicated as far as our description is concerned: an optional deictic element followed by an optional number, followed by an obligatory head, either a noun or a pronoun.⁷

If a noun occurs as the head, the lexeme /DL/ will be realized as the lexon /DL/; otherwise there is a neutralization between /DL/ and /PL/.⁸ The dual form of pronouns and deictics is the same as the plural form, and for number lexemes, both /DL/ and /PL/ will be realized as zero in the lexonic alternation pattern.

The alternation between /DL/ and /PL/ must take place below the lexotactics so that the proper conditioning of verbal concord can take place. Nouns fall into several morphotactic classes, so it is simpler to treat the alternation as lexemic rather than lexonic.

As seen in sentences (10) and (11), specification for number occurs over the entire noun phrase, and is determined by the number of the head; this is graphically represented by the unordered ANDs which dominate the ordered AND of the noun phrase structure.

- (10) i' taaqa
 this-SG man-SG
 'this man'

- (11) ima taataqt
 this-PL man-PL
 'these men'

If the lexeme /PL/ occurs with the noun phrase which realizes the agent, the left-hand path of the ordered OR labeled (a) will be taken and plural concord will occur on the verb, as indicated by conditioning line 1. If the agent is not plural, the right-hand path of node (a) will be taken and either the marked dual or zero--the unmarked singular--will occur, thus allowing the automatic realization of the subject concord element as zero. The effects of subject concord are illustrated in sentences (12)-(14).

- (12) taaqa tuupevut nöösa
 man-SG (cooked sweet) corn-SG-OBL ate-SG
 'A man ate corn.'

- (13) taaqavit tuupevut nöösa
 man-DL corn-SG-OBL ate-SG
 'Two men ate corn.'

- (14) taataqt tuupevut nöönsa
 man-PL corn-SG-OBL ate-PL
 'Men ate corn.'

For verbs which show agreement with the object, as seen in sentences (15)-(17), a similar situation holds. If the object is

plural, the left-hand path of the ordered OR (b) will be taken, providing for the realization of object concord on the verb with conditioning line 2. If the object is either dual or singular, the right-hand path of (b) will be taken and the object concord will automatically be realized as zero.

- (15) taaqa sowit niina
man-SG jackrabbit-SG-OBL killed-SG(SbCn)-SG(ObCn)
'A man killed a jackrabbit.'
- (16) taaqa sowivituy niina
man-SG jackrabbit-DL-OBL killed-SG(SbCn)-SG(ObCn)
'A man killed two jackrabbits.'
- (17) taaqa sowimuy qöya
man-SG jackrabbit-PL-OBL killed-SG(SbCn)-PL(ObCn)
'A man killed jackrabbits.'

This ends the discussion of lexotactic phenomena relating to number in Hopi; let us now proceed to a brief examination of some of the morphological phenomena involved.

3. Morphotactic Relationships

The morphotactic structure of words is quite simple: the stem is followed by the dual suffix *-vit*. The realization of the plural is more complicated; Table I shows the singular and plural forms for words in several morphotactic classes.

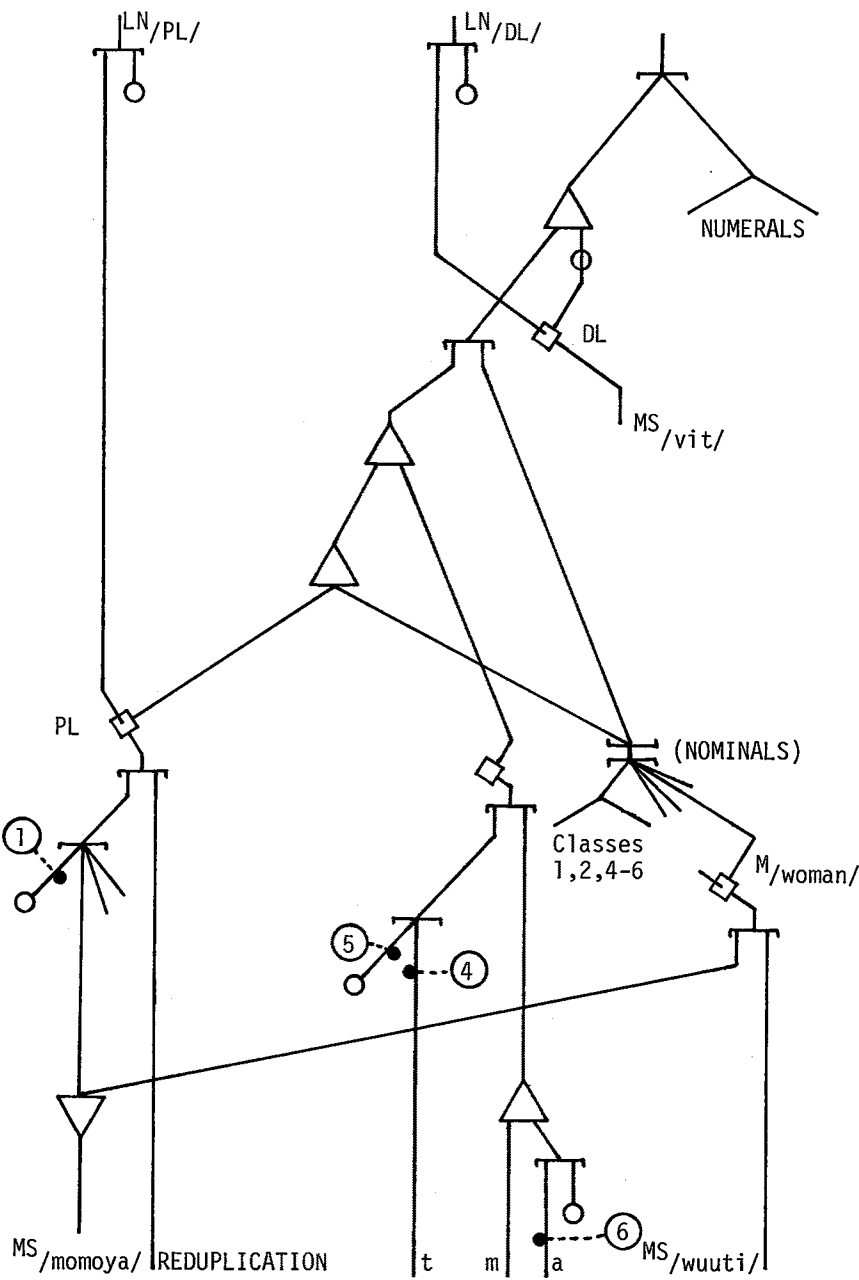
Table I: Singular and plural forms for various nominal classes.

<u>Class</u>	<u>Singular</u>	<u>Plural</u>	<u>Gloss</u>
1	tsiro	tsirom	'bird'
2	mangya	mamngyam	'lamb'
3	wuuti	momoyam	'woman'
4	taaqa	taataqt	'man'
5	tama	tatma	'tooth'
6	i'	ima	'this'

The plural of words in Classes 1, 2, and 3 all end in *-m*. Words in Class 2 also have a reduplicated stem in the plural, whereas those in Class 3 have a plural stem which is quite distinct from the singular. Words in Class 4 have both a suffix *-t* and a reduplicated stem in the plural. Class 5 words exhibit only reduplication, and words in Class 6 (which includes certain person and deictic morphemes) have a plural suffix *-ma*.⁹

Figure 4 shows the preferred analysis of the data; the plural is accounted for by the structure connected to the left-hand path of the ordered OR. This indicates that this path must be taken if the plural occurs. Otherwise, the right-hand path will be taken and the singular noun stem will occur, with or without the dual

Figure 4: The morphotactic structure of nominals.



suffix.¹⁰ It is simpler to consider the plural suffixes as realizations of a determined element found at the end of the plural construction. In this treatment, then, all nominal morphemes occur simultaneously with the plural morpheme, its usual realization being a specification to the phonology to reduplicate the stem in a certain manner. In the case of Class 1 words, however, the plural morpheme is realized as zero, and for Class 3 the stem and the plural morpheme will take part in a portmanteau relationship which results in the plural stem.

Verbs also show reduplication and suffixation in the plural, but because of the complex interaction between verbal stems, concord elements, and aspect morphemes, no detailed analysis of the verbs will be attempted here. The data in Table II illustrate some of the phenomena which will have to be accounted for in a morphotactic analysis of the verbs.

Table II: Sample verb paradigms involving number and aspect.

	<u>Simple Aspect</u>	<u>Durative Aspect</u>	<u>Gloss</u>
SG	nöösa	tuumoyta	'eat'
PL	nöönösa	noonova	
SG	wari	wárikiwta	'run'
PL	yuutu	yuutukiwta	
SG	peena	penta	'write/paint'
PL	peenaya	pentota	
SG	yori	yórikiwta	'look at/face'
PL	yórikya	yórikiwyungwa	

Having provided a final bit of grist for our mills, we may now conclude the discussion of aspects of grammatical number in Hopi.¹¹

NOTES

1. The Hopi data are based exclusively on Kalectaca 1978. Although this work is an excellent learner's introduction to the language, it is not a reference grammar; hence the analysis given here must be regarded as tentative, subject to revision in the light of further data.
2. It is generally assumed in stratificational models that the semotactics handles co-occurrence restrictions between events and participants. That issue is here left aside so that we may more effectively focus on the topic of number.
3. For a stratificational analysis of number expressions in English, see Sampson 1970. Also, it may be better to have sememes for the "plural" pronouns; they would then be automatically accompanied with determined tactic elements which would provide for occurrences of /PL/ and /DL/.

4. For reasons of simplicity, only the basic structure of simple clauses is presented. The oblique case, usually realized by a suffix -t, marks the lexotactic object of the verb and also the object of a postposition, as in

nu' taaqat aq wari
 1-SG man-SG-OBL toward ran-SG
 'I ran toward the man.'

5. When it occurs with dual or plural words, the oblique case marker is realized as -y (with a linking vowel -u- in certain environments).
6. Information as to which events can occur with a patient and which cannot is specified in the semotactics, making a lexotactic distinction between transitive and intransitive verbs redundant. There are those who would take exception to this, of course, and they may have compelling reasons for doing so; I would welcome any opportunity to discuss this matter further.
7. Adjectives are not inflected for number in Hopi and so are not included in the present discussion; cf. wukotaqa 'big man' and wukotataqt 'big men'.
8. Lockwood (personal communication) now prefers to call this type of interstratal discrepancy syncretization, to more clearly separate it from other phenomena which are included under the name "neutralization".
9. Space limitations preclude a detailed discussion of certain morphophonemic and phonotactic phenomena; the realization of the glottal stop /' / before /m/ is an instance of the former, reduplication in the phonotactics is an instance of the latter.
10. In this treatment, relationships at higher levels ensure that the dual and the plural will never occur simultaneously.
11. Chamorro, a language of Guam, is the only other language known to me where the use of a plural subject with a singular verb expresses the dual. For details, see Topping 1973:232-3. I would appreciate hearing about others.

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THE DEFINITION OF NODES IN STRATIFICATIONAL GRAMMAR

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0. Node definitions. In Stratificational Grammar (SG) the linguistic code is regarded as a network of relations connecting meaning and sound. It is a device for translating non-linear semantic structures into linear phonetic structures (encoding) and vice versa (decoding). One central assumption of the proponents of this model is that although the linguistic code is a very complex system, it is made up of a relatively small number of relation types. AND and OR are considered the primary and most important of these.

Students of SG have developed a method of representing the network model of language by graphical networks. These consist of lines connecting various types of nodes, each of which symbolizes a specific relation. It is believed that the grammar of a language can be adequately represented by network diagrams.

Since relations are the building blocks of relational networks, the need of their definition is obvious. Most studies in SG begin with a definition of nodes. There are also a few specialist studies that devote considerable space to, or deal exclusively with, the definition and formal properties of the relations represented by SG nodes (Lamb 1966; Lockwood 1972; Sampson 1970; Reich 1973a; Schreyer 1977; Sullivan 1977; Christie 1976, 1977). Sullivan (1977:393) distinguishes between a behavioral (Lamb, Reich), a mathematical (Sampson) and a logical (Sullivan) type of node definition. One ought to add Christie's (1976, 1977) micronotation, which employs logical nets of a special kind.

An examination of these definitions would show that not all have been executed with the same clarity, completeness and methodological consistency, and that not all nodes are equally well defined. Since space does not permit a detailed analysis of all definitions, the remainder of this study will focus on some issues treated in Sullivan (1977) which have a bearing on the general problem of node definition. At the same time it will offer a criticism of Sullivan's logical definitions.

1. On Sullivan on formalization. In his introductory apologia Sullivan (393-4) writes that the formalization of a theory of any kind "has as one main consequence the explicit, full statement of properties and characteristics of a specific model of the theory". It seems that in his view a theory must be generally broad enough to accommodate different models, each the result of a different formalization. He does not expound the relation between language, a theory of language and a model of that theory, but he appears to postulate that any model of a linguistic theory

must account for the behavioral functions of language. He maintains that a mathematical model "effectively assumes that language has the functions of the mathematical theory chosen". A behavioral formalization, on the other hand, is, according to Sullivan, less precise. His own formalization is based on the logical system developed in Fitch (1952). This system, he claims, allows the necessary precision while having broad applicability and imposing "little or no structure of its own".

Some of the points made in these introductory remarks are by no means self-evident. There is, for instance, no a priori reason to assume that the behavioral definitions of SG nodes are necessarily less precise than the mathematical ones. Furthermore, it is not obvious that the logic employed in Sullivan's definitions imposes little or no structure of its own. In Fitch's as in any other system of logic the structure of theorems is completely determined by the set of operators and axioms. It may, therefore, be argued that any logical analogue assumes that language has the functions of the logical theory chosen. I do not believe that all formal systems are equally well suited for a formal definition of SG relations, but in an important sense all definitions of SG relations must be equivalent if they really do define the same relations. The criteria for preferring one type of formal definition to another have not yet been sufficiently elaborated.

Relations may be defined without any reference to specific entities. Nevertheless, verbal explications sometimes fail to distinguish between the definition of a node and a demonstration of its linguistic applicability. If Sullivan (397) writes that "the ordered OR typically expresses the relationship between the marked and unmarked variants of some linguistic element", he is giving an example rather than a definition. Another flaw found in some of the proposed definitions is their lack of consistency: Sullivan (395-99) defines the unordered OR and the downward part of the ordered AND, not however any other nodes, in terms of impulses travelling through them. This interpretational inconsistency is apt to produce an avoidable obscurity of the verbal definitions that can even obfuscate the stipulated behavioral equivalence between verbal and formal definition. It can, moreover, obscure the similarities and differences between the types of nodes to be defined.

This somewhat sweeping discussion suggests several tentative criteria for an acceptable definition:

- 1st. The definition of nodes and the exemplification of their linguistic uses ought to be kept separate.
- 2nd. Definitions ought to be based consistently on one type of node interpretation.
- 3rd. There must be a clear connection between the verbal definition and its formal counterpart. Ideally the formal definition ought to be systematically derivable from the verbal definition and vice versa. A corollary from this is that the formal definition can only be as precise as the verbal one.

The following analysis will apply these criteria to Sullivan's definitions of the four basic SG relations.

2. An examination of Sullivan's definitions. Like most authors Sullivan begins with a verbal definition, designed to specify the behavioral functions of the node to be defined. This is followed by a logical definition "effected as simply as possible". This definition is then tested for the proper behavioral characteristics and "shown to display analogues to the behavioral characteristics considered necessary to describe real language functions".

The definitions consist of two parts: a downward part to account for encoding and an upward part to account for decoding. This is reflected in the structure of the logical formula:
(downward definition) & (upward definition)

2.1. The unordered OR (Disjunction). The unordered OR is generally defined as an exclusive OR, sometimes abbreviated as XOR. Sullivan's (395) verbal definition of Fig. 1 also suggests an XOR:

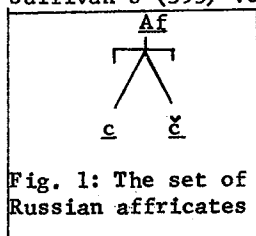


Fig. 1: The set of Russian affricates

"The simple or unordered OR node is used for specifying the set-member relation...Its downward and upward functions are behaviorally equivalent: any member of the set is sufficient to effect movement up through the node. If an impulse is moving down through Af, either c or č may be chosen ad libitum. Which is actually chosen in a specific instance depends on other factors, a discussion of which is beyond the scope of this study. Conversely, an impulse moving up through either c or č allows us to pass to Af." The corresponding logical definition is given as

$$(1) (Af \Rightarrow (c \ \& \ \check{c})) \ \& \ ((c \vee \check{c}) \Rightarrow Af)$$

From the caption of Fig. 1 it becomes clear that Af stands for the set of affricates, and c and č for the members of that set. As pointed out, this linguistic instanting of the variables in that relation is - at best - unnecessary.

What is more important, however, is that Af, c and č stand for propositions (cf. Sullivan 1977:402 n.2). But what are these propositions? The phrasing of the verbal definition displays little uniformity¹, and consequently it is difficult to decide whether in the downward and upward definitions the same symbol really stands for the same proposition. In discussing the behavioral characteristics of the definition Sullivan (395) states that "either c or č can be obtained if input is supplied at Af" and that "Af can be deduced no matter which provides the initial input, c or č". From these formulations we can derive the following propositions:

downward definition	upward definition
<u>Af</u> ddef. Input is supplied at <u>Af</u> .	udef. <u>Af</u> can be obtained.
<u>c</u> ddef. <u>c</u> can be obtained.	udef. Input is supplied at <u>c</u> .
<u>č</u> ddef. <u>č</u> can be obtained.	udef. Input is supplied at <u>č</u> .

It is quite obvious that in the ddef. and the udef. Af, c and č stand for different propositions. This is logically not permissible: the same symbol must always stand for the same proposition.

All of Sullivan's definitions suffer from this flaw: his symbols for propositions are systematically ambiguous between the ddef. and the udef.

To save the definitions one might suggest the following interpretation of Af, c and ċ:

Af def. There is an impulse at Af.
c def. There is an impulse at c.
ċ def. There is an impulse at ċ.

These propositions would be compatible with one stratificational interpretation of nodes, but they make no distinction between the upward and downward movement of impulses, a distinction that is of crucial importance for an account of encoding and decoding. If the symbols for propositions were interpreted in this manner, Sullivan's definitions would merely specify the permissible combinations of impulses. There would be no point in distinguishing between a downward and an upward definition, and the job could probably be done by a simpler formula. In the following discussion I shall therefore assume that each symbol expresses two different propositions, one for the ddefinition and one for the udefinition.

In defining the unordered OR Sullivan does not provide an algorithm for deriving the logical from his functional definitions. But he offers proof that the logical definition "fulfills the functional requirements" stipulated for the unordered OR.² If this OR is to represent the either-or relation, both of Sullivan's formulae are doubtful.

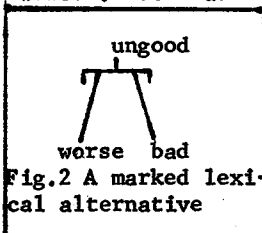
For the ddefinition he points out himself that "the logical definition differs from the functional in not having its two halves simply the reverse". In fact, in the ddefinition not only either c or ċ can be obtained, but also both c and ċ, as Sullivan correctly observes in a footnote (402, n.3). The ddefinition of the ordered OR is structurally identical with that of the unordered AND. Sullivan's justification for choosing conjunction rather than disjunction or implication as the pertinent relational operator is that the latter "would allow neither c nor ċ to be deduced without additional information or hypotheses". I am not convinced that this is sufficient reason for changing the definition: perhaps one ought to take a closer look at those "other factors" Sullivan excludes from his discussion (Schreyer 1977:139-42; 1980).

The udefinition ($(\underline{c} \vee \underline{\dot{c}}) \Rightarrow \underline{Af}$) suggested by Sullivan employs the operator $\vee$, which - in Fitch's logic - stands for an inclusive OR. Consequently either c or ċ, or both, may provide the input for Af to be deducible.

Thus both parts of the definition of the unordered OR have a highly undesirable characteristic: they admit the joint occurrence of c and ċ.

2.2. The ordered OR (Precedence Disjunction). According to Sullivan (397-8) the ordered OR realizes "the lexical item meaning 'ungood' as 'worse' in the limited raised environment of comparative and superlative (not shown). It is otherwise realized as

'bad'. In the limited environment there must be a preference for 'worse'. But 'bad' should also be available. This will account



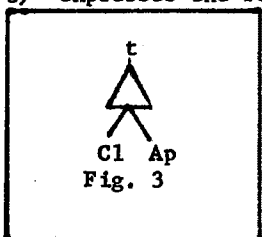
for mistakes like 'badder' and the native speaker's ability to decode them". The corresponding formula is

(2) $(u \supset ((R \supset (w \vee \sim b)) \& b)) \& ((w \vee b) \supset u)$ where 'u' stands for 'ungood', 'b' for 'bad', 'w' for 'worse' and 'R' for 'raised' (comparative and superlative).

The upward definition is identical with that of the unordered OR and must be criticized for the same reason. The downward definition is more intriguing: it has four elements whereas the node depicted in Fig. 2 has only three. The additional R in the logical definition provides the condition governing the choice of w. Since Fig. 2 does not have an R, the logical definition cannot be of that node alone, but of a larger network. There is no indication of how conditioned choice should be represented in the diagram.

Note also that in the definition both w and b can be deduced if R is hypothesized. Thus the choice between the two is arbitrary: there is no indication in the formula that w should have precedence. It seems, then, that neither the ordered nor the unordered OR allows a choice until the conditions governing that choice are made explicit in their definitions.

2.3. The unordered AND (Conjunction). The unordered AND (Fig. 3) "expresses the relation of an element to its components when



these components occur simultaneously or in no discernible order" (Sullivan 396). The logical formula is:

(3) $(t \supset (C1 \& Ap)) \& ((C1 \& Ap) \supset t)$

I have already pointed out that the downward definition is identical with that of the unordered OR, an identity not expressed in the phrasing of the verbal definition: to describe the same logical relation Sullivan uses in one

case "either-or", in another "both".

Another notable point is the suggestion that the possibility of deducing C1 and Ap in any order provides an analogue to the "no-discernible-order" type of AND relation. In logic the order in which propositions are deduced is irrelevant: there are no rules of temporal or spatial ordering in combinatorial logic. If time is irrelevant to the behavioral characterization of the unordered AND, we do, indeed, have a kind of negative logical analogue. But what if time were an essential factor in the behavioral characterization of the node? In that case an atemporal combinatorial logic could not handle the definition and we would have to look for a temporal logic that can. There is a simple reason why "no logical support can be found for a rigid simultaneity": the logic used is atemporal. The fact that such a system does not possess a given characteristic can never support or refute any statement about real language. Linguistic data may be used to falsify the model,

but not vice versa.

2.4. The ordered AND (Concatenation). Sullivan (396-7) offers the following definition of the relation symbolized by Fig.4:

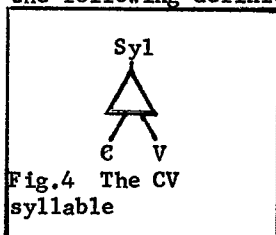


Fig.4 The CV syllable

"The ordered AND node relates one element to several, as does the unordered AND. What differentiates the ordered AND from the unordered is that the several elements in the ordered AND occur in one unique, fixed sequence ... An impulse travelling down through Syl should produce an impulse out C followed by one out V. The sequence VC and simultaneous occurrence should be prevented...In the upward direction, the syllable should always process the consonant before it processes the vowel".

It is the ordered AND that makes possible the temporal linearization on non-linear linguistic structures. Any definition that ignores the sequential nature of the node is bound to fail. The same point is made by Christie (1978:248) when he writes that a-temporal systems are "inadequate as a description of the operation of a linguistic system".

Disjunction, precedence disjunction and conjunction are atemporal and may therefore be defined in an atemporal system. Now Sullivan's formula

$$(4) (Syl \Rightarrow (C \& (C \Rightarrow V))) \& (C \Rightarrow (V \Rightarrow Syl))$$

has no reference to time. In a footnote (403,n.5) he explains that he deals "only with logical dependency as an analogue of temporal ordering". This explains why he dismisses the objection that the definitions of the unordered and the ordered AND are provably equivalent (402-3,n.4): he claims that it is the functional difference that provides the distinction between the pertinent theorems that are to demonstrate the required behavioral characteristics of the two types of AND.

The terms 'behavioral characteristics' and 'functional difference' are still unexplained. But Sullivan's definitional procedure shows that the verbal definitions are meant to specify the behavioral characteristics of the nodes.³ What are logical analogues of these characteristics? A look at the pertinent theorems should provide an answer.

Sullivan's theorems IIIa and b are supposed to show that definition (4) "produces both C and V during encoding ... and that they are processed in that order only". The deduction of propositions is, then, logically analogous to the presence of impulses, and the order of deduction is logically analogous to the temporal sequence of impulses (cf. also Sullivan 403,n.5).

Considerations concerning the sequence of deduction are, however, extraneous to logic. Thus, the logical analogue to temporal sequence is based on the introduction of processing rules which are not part of the logical system.

Sullivan tries to lend support to his definition of the ordered AND by showing that it is capable of distinguishing "between the same elements presented in a different order" (399-401). He

claims that, in decoding, the upward definition can distinguish between the phonetic sequence p-o-t and the sequences t-o-p or o-p-t. He makes two "performative assumptions", i.e. that the phonemes are available in sequence and that each is to be processed as soon as possible. His proof is as follows:

p-o-t			t-o-p		
1 p		hyp1	1 p		hyp1
2 p	(o $\Rightarrow$ (t $\Rightarrow$ pot))	def	2 t $\Rightarrow$ (o $\Rightarrow$ (p $\Rightarrow$ top))		def
3 o	(t $\Rightarrow$ pot)	1,2 m.p.	3 -		-
4 o		hyp2	4 o		hyp2
5 t $\Rightarrow$ pot		3,4 m.p.	5 -		-
6 t		hyp3	6 t		hyp3
7 pot		5,6 m.p.	7 o (p $\Rightarrow$ top)	2,6 m.p.	
			8 p $\Rightarrow$ top	4,7 m.p.	
			9 top	1,8 m.p.	

Sullivan points out that the pot derivation produces a result while the top derivation still has steps to go: "An automatic processor set to decode all of these [permutations of p,o,t] simultaneously and report as soon as a conclusion was reached would deduce that the syllable being processed was pot... The final argument is provided by the fact that [p-o-t] is the only theorem to process the separate phonemes in the correct order" (1977:400). This final argument rests on the tacit assumption of left to right processing, an assumption which - to my knowledge - is not part of Fitch's logical system. Since Sullivan's proof depends on this additional performative assumption, it is void. A purely combinatorial logic cannot define nodes of a sequential nature.

2.5. Summary of criticism. Sullivan's definitions are not systematically and consistently based on one type of node interpretation. They do not distinguish between the definition of the relation and a demonstration of its linguistic uses.

There is no algorithm for deriving the logical from the verbal definition. In the case of the unordered OR Sullivan even points out a discrepancy between the verbal and the logical definition.

In the logical definitions the same symbol stands for two different propositions. Even if this taken into account it is found that the verbal sometimes contradicts the logical definition. In the case of the downward definition of the unordered AND and OR two structurally identical formulae are made to stand for two incompatible verbal definitions.

The logical definition of the ordered OR contains an element R not represented in the graph of the node, and consequently the definition defines more than the node. Furthermore, it does not specify that under condition R the left leg of the node should have precedence.

In the discussion of the unordered AND there is an invalid argument: the fact that there is no simultaneity in the logical deduction of two propositions cannot support an argument about simultaneity of occurrence in real language.

The type of propositional calculus employed by Sullivan does not provide an analogue to the temporal succession of elements as defined for the ordered AND. The analogy between logical dependency and temporal ordering is a pure artifact, the result of some implicit and explicit restrictions imposed on the sequence of steps in the processing of the logical formula, restrictions that are foreign to the logic.

I conclude, therefore, that Sullivan's definitions in some cases do not and in one case cannot "predict the [behavioral] characteristics of the nodes which Lamb and others have required" (401). But I believe that the aim of a formal definition of SG nodes is worth pursuing and I hope that the criticism of proposed definitions will point the way to improvement.

3. Conclusion: Yet another definition. I shall conclude with a brief outline of a logical definition which, I believe, may be an improvement over the other definitions, even if it can only solve some of the problems.

The verbal definition rests consistently on the so-called dynamic interpretation proposed in Lamb (1966:10,42), which regards nodes as input-output systems. Due to the bi-directionality of the network each node must have two definitions, one for input at the singular and one for input at the plural side. Output is seen as completely determined by input. The relation between input and output can be systematically defined in an input-output table. This table is then converted into a logical definition in terms of Boolean algebra. The method of conversion is old and has been described in many works concerning the logical design of switching circuits (e.g. Robinson 1974; Siegel 1971). This method works for all purely combinatorial nodes (ordered and unordered OR, unordered AND).

The upward definition of the unordered OR (XOR), for instance, would be completely determined by the following table:

input		output
b	c	a
0	0	0
0	1	1
1	0	1
1	1	0



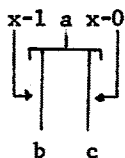
0 - 'no input'
1 - 'input'

Fig. 5

This table is then converted into the so-called adjunctive normal form $(b \wedge \bar{c}) \vee (\bar{b} \wedge c)$ of Boolean logic and - if possible - simplified by application of the different laws.

Another example would be the downward definition of precedence disjunction (Fig.5). Obviously there is no output at b or c unless there is input at a; i.e. if a has the value 0, both b and c have the value 0 too. If a has, however, the value 1, either b or c must have the value 1. The question is which? There can be no decision until we introduce another input variable x, whose presence shall determine output at b and whose absence shall determine output at c. Again, this information can be conveyed by a table:

input		output	
a	x	b	c
0	0	0	0
0	1	0	0
1	0	1	0
1	1	0	1



We write this again in the adjunctive normal form:

b def. $a \wedge x$

c def. $a \wedge \bar{x}$

This method of defining SG nodes has certain consequences on the understanding and representation of relational networks which I have discussed elsewhere (Schreyer 1980). The main difficulty with this definition is that it cannot define temporal sequence, and thus it cannot define the ordered AND. In order to be able to do so we may have to take a close look at the much more complicated networks of a sequential nature. Christie is obviously oriented in this direction: he introduces memory elements, i.e. time, into his micronotation. How research into sequential nets will affect our conception of SG I dare not say. But I do no longer believe that the formal definition of the nodes of Stratificational Grammar is a modest goal.

NOTES

1. This is true even when the corresponding parts of the logical definition have the same structure. Compare, for instance, the downward definition of the unordered OR and AND.
2. Cf. also the discussion of the ordered AND.
3. In his verbal definition of the unordered OR, for instance, he points out that the upward and downward functions are behaviorally equivalent.

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PRINCIPLES OF A BOX-DIAGRAM NOTATION FOR SYNTACTIC SOLUTIONS

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0. Introduction

The notations used in the presentation of syntactic analyses are of two major kinds: the algebraic and the graphic. The algebraic notation most widely known and used today is the phrase-structure notation introduced by Chomsky, though other roughly equivalent forms of such notation exist in the formulas of classical tagmemics (Elson and Pickett 1962, Longacre 1964, Pike 1967)¹ and the system of algebraic notation used by stratificationists (Lamb 1966b, Lockwood 1972). Graphic notation in the description of data sets is found mainly in the work of the stratificational school, in the form introduced in Lamb 1966a, presented more fully in Lamb 1966b, and modified since by various theorists. In the description of individual sentences or other syntactic items, as opposed to whole sets of these, it should be noted, graphic means have been used for a long time. Examples range from the Reed and Kellogg diagrams of the school grammar tradition, to various kinds of immediate constituent diagramming systems (e.g. that of Nida 1960 or Hockett 1958), to the tree diagrams which have become ubiquitous in transformational work. Some extension of these graphs to cover more than a single sentence is possible if we represent the diagram only in skeletal form with labels for word or morpheme classes rather than individual lexical items. It remained for Lamb, however, to take the step of representing alternate constructions as well as alternate lexical items in a single graph. This innovation led to a scheme allowing the representation of a whole syntactic system of interrelated constructions and vocabulary classes in an integrated graphic form.

When we consider their practical utility, we find that both algebraic and graphic notations have their limitations. A system of moderate complexity presented in purely algebraic form, for example, is almost impossible to follow, unless the reader begins to draw some sort of graphs for himself.³ The stratificational graphic system seems in many ways to solve this problem, but there are still widespread complaints about the spaghetti-factory-like effect produced by the use of diagrams containing more than just a few nodes.

The present paper sets forth a notation based heavily on Lamb's graphic system, but also showing considerable influence from the principles of classical tagmemics. This notation was initially developed for classroom use in a course on the syntactic analysis of what is essentially surface syntax⁴ from a wide variety of languages. Sections 1 and 2 present the essentials of the notation system, while section 3 addresses its relative advantages with respect to other systems, and its status as essentially a variant form of the Lambian graphic system.

1. Constructional and Vocabulary Boxes

This system of notation is based on the interrelation of two basic types of boxes: the constructional box as shown in Figure 1, and the vocabulary box as shown in Figure 2. If we view any construction as relating a CONSTITUTE to its two or more CONSTITUENTS, we can see any constructional box as containing in its top half a sub-box with a label for the constitute, and in its bottom half two or more sub-boxes with the labels of its constituents. As in the Lambian algebra, the use of square brackets around a constituent symbol indicates its optionality.

Each vocabulary box represents the relationship between a syntactically relevant class of vocabulary items and the individual members of the class. Such a box contains a class-label in its top sub-box, followed by a list of members in an appropriate notation in its lower sub-box.⁵

Figure 1.

Schematic Constructional Box

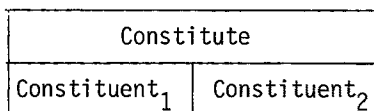
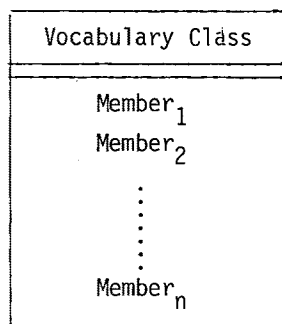


Figure 2.

Schematic Vocabulary Box



1.1 Subtypes of Constructional Boxes

Those familiar with stratificational theory will be aware that the constructional box corresponds to a downward AND node. Different varieties of such nodes, however, need to be recognized. We need a downward ORDERED AND for the most frequent relation of phrase and clause syntax, and simultaneous UNORDERED AND for cases where no syntactic sequence is relevant⁶, and an ARBITRARILY SEQUENTIAL AND for cases where the order appearing in the data appears to be arbitrary⁷. Reflecting such distinctions, constructional boxes are divided into three types, with the differences symbolized by the type of symbol used to separate the constituent sub-boxes from one another:

- 1) ORDERED--symbolized by a vertical line separating constituent labels;
- 2) SIMULTANEOUS--symbolized by a raised dot surrounded by vertical arcs ($\odot$) separating the constituent labels;
- 3) ARBITRARILY SEQUENTIAL--symbolized by an alternation symbol enclosed in a circle ($\ominus$) separating the constituent labels.

The use of each of these three types of constructional box is illustrated in Figure 3.

Figure 3. *Types of Constructional Boxes*

- (a) *Sequentially
Ordered: English*

Noun Phrase		
Determiner	Adjective	Noun

- (b) *Simultaneous: Latin*

Adjective			
Adj Stem	Case	Number	Gender

- (c) *Arbitrarily Sequential:
Chontal of Tabasco*

Intransitive Clause	
Intr Predicate	Location

1.2 Interrelations among the Boxes

The remaining basic syntactic relationships depicted by the box-diagrams are symbolized by lines connecting the various boxes to one another. The essential types of connections involved are

- 1) connections of constructional boxes to vocabulary boxes, and
- 2) connections of constructional boxes to other constructional boxes.

1.2.1 Relations between Constructional and Vocabulary Boxes

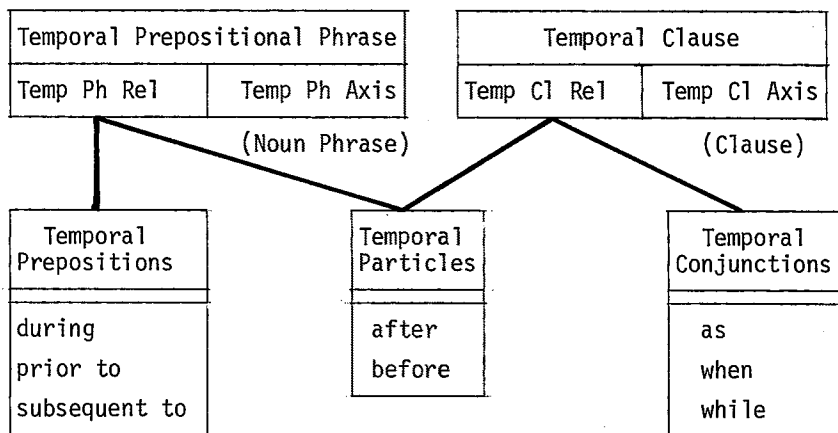
At the bottom of any syntactic description it is necessary to reach vocabulary connections, and this is achieved by connections from the lower constituent sub-boxes of a constructional box directly to a vocabulary box. Such connections represent one aspect of the slot/class distinctions found in tagmemics, in that the constituent sub-box represents the slot or function, while the class-sub-box at the top of the vocabulary box represents the filler class.

It should further be noted that a given vocabulary box may connect upward to more than one constituent sub-box, and a given constituent sub-box may similarly connect downward to more than one vocabulary box. It is indeed the existence of such deviations from one-to-one relations which aids in the formal justification of the function/class distinction.

An example of such multiple connections is provided by the partial overlap between the manifestations of the class of temporal conjunctions and temporal prepositions in English. Some items can occur in either function--either in the slot *the event* or the slot *John spoke*--e.g. *before*, *after*. Other items occur in one of these functions, but not the other, e.g. the conjunctions *when*, *while*, *as* vs. the simple or compound prepositions *during*, *prior to*, *subsequent to*. These relations are shown in box-diagram form in Figure 4.

1.2.2 Relations between Constructional Boxes

Other relationships will connect the various sub-boxes of different constructional boxes. Such connections always link a constituent sub-box at the bottom of one constructional box to a constitute sub-box at the top of some constructional box.

Figure 4. *Functions of Temporal Conjunctions and Prepositions*

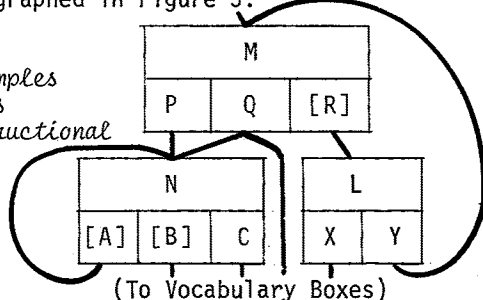
Three varieties of such connection may be found:

- 1) Connection between a constituent of a given rank and a constituent of a lower rank, e.g. the manifestation of a clause constituent by a phrase constituent.
- 2) Connection between a constituent of a given rank and a constituent of the same rank, which may in a special case be the same constituent of which the constituent is a part (self-embedding).
- 3) Connection between a constituent of a given rank and a constituent of a higher rank, as when a subordinate clause serves as a modifier in a phrase.

Examples of all three of these types, including the typically looping structures for the direct and indirect types of self-embedding in subtypes of 2 and 3, are illustrated by the hypothetical example graphed in Figure 5.

Figure 5.

*Schematic Examples
of Connections
between Constructional
Boxes*



It should further be noted that there may also be alternate connections from a given constituent sub-box and to a given constituent sub-box, in a manner exactly parallel to what we find with the connections between constituent sub-boxes and vocabulary boxes. Furthermore, the same constituent sub-box may alternately be manifested by either a construction or a vocabulary class. This provision further amplifies the notion of filler class, since such classes may include constructions as well as vocabulary items.

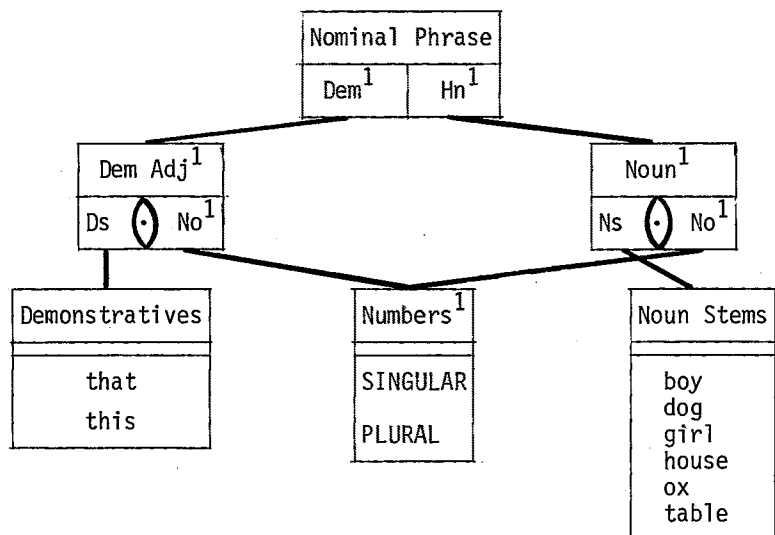
2. Concord and Other Co-occurrence Restrictions

The one major type of syntactic (as opposed to semantic or morphological) fact not covered by the system outlined above is the occurrence of concord and similar restrictions on the co-occurrence of grammatical elements. These can be handled in this system by a series of suprascripts to the symbols appearing in the various sub-boxes. Taken together, such suprascripts indicate which vocabulary selections must show agreement and how they must agree.

The presentation of the full range of possible agreement phenomena and their treatment is beyond the scope of this paper. Two examples show the treatment of number and gender concord in familiar languages, thus illustrating two somewhat different applications of the suprascripting system.

Our first example is Figure 6, which deals with the English number concord between the head noun and the demonstratives *this/these* and *that/those*. When the plural element is abstracted out of the forms *these* and *those*, the situation reduces to a requirement that the same selection be made in the number vocabulary box for the demonstrative as for the head noun. The suprascript ¹, symbolizing the agreement, occurs initially on the two agreeing constituents. It is then carried down to the word rank constitute phrase symbols Dem Adj and Noun. In the word-rank constituents, the suprascript is localized in the number affix alone, as this is all it will affect. Finally the vocabulary box for numbers carries the suprascript on its class symbol. This usage signifies that demonstratives and heads in the same NP construction must receive the same vocabulary selection--either SINGULAR or PLURAL--in the Numbers box.

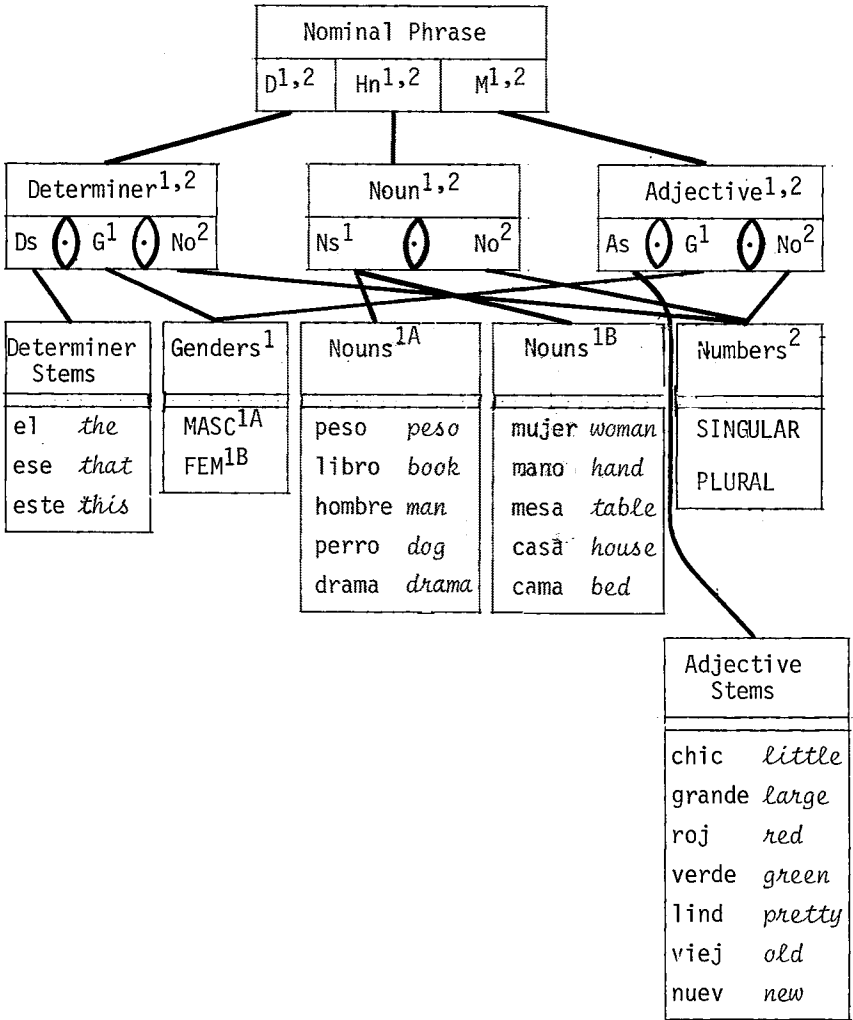
Figure 6. *Suprascript Treatment of Demonstrative Concord in English*



This treatment assumes that morphological details in the realization of the plural category in conjunction with the various nouns and demonstratives will be left to a separate morphology.

Figure 7 shows the kind of gender and number concord found in Spanish nominal phrases. The number concord, indicated by the suprascript ², is quite parallel to that already shown for English in Figure 6. Of special interest is the gender concord, since here a class selection for one constituent (the noun) affects a selection of grammatical categories for its modifiers. Spanish nouns, in other words, are taken to belong to a gender class, while adjectives are inflected for the categories of gender.

Figure 7. Gender and Number Concord in Spanish Nominal Phrases



3. Comments

3.1 The Relation of the Box-Diagram Notation to Other Notations

Apart from its suprascripting system, the box-diagram system is mechanically convertible into a labeled relational network diagram of the sort used by Lamb. Its constructional boxes correspond to downward AND nodes, its vocabulary boxes to downward OR nodes. Its diverging and converging lines correspond to downward and upward ORs, respectively. In its ability to represent downward ANDs and upward and downward ORs, box-diagram notation deals with the most fundamental types of nodes for tactic systems.

At the same time, there are significant ways in which box-diagram notation differs from relational network notation:

1) it has nothing corresponding to some of the relational network nodes, for example the upward ANDs, not to speak of diamonds or enablers;

2) its arbitrarily sequential nodes have no generally accepted equivalents in the relational network system;

3) it represents concord in a fundamentally different manner from relational network notation.

Considerable equivalence is also observable between box diagram and algebraic notation. With the sole addition of suprascripts, for example, it could readily be converted into either a tagmemic formula of the classical type or into Lambian algebra. Conversion into phrase-structure would presumably require the introduction of a means to explicitly represent the upward OR relation in various cases.

In short, this notation system is just an alternative means of representing basic syntactic facts, not anything radically new in its theoretical base.

3.2 The Utility of the Box-Diagram System

From its inception, however, the aims of the box-diagram notation have been practical rather than theoretical. It has been designed to make the solutions to syntactic problems as comprehensible as possible. To this end it combines the graphic form of relational network notation with the labels characteristic of algebraic notations in an attempt to exploit the advantageous properties of each of these.

To date, this system has had one trial as the basis for a course in syntactic description offered to a small group of students. Some of its properties were being developed day to day during that trial. On the whole, students were able to grasp the workings of this system and its application to varied data rather rapidly.

In addition to this classroom application, this system would also seem to be useful as a device for presenting an analysis to an audience with a primary interest in the basic syntactic facts rather than the theory behind their discovery and presentation.

3.3 The Limitations of the Box-Diagrams

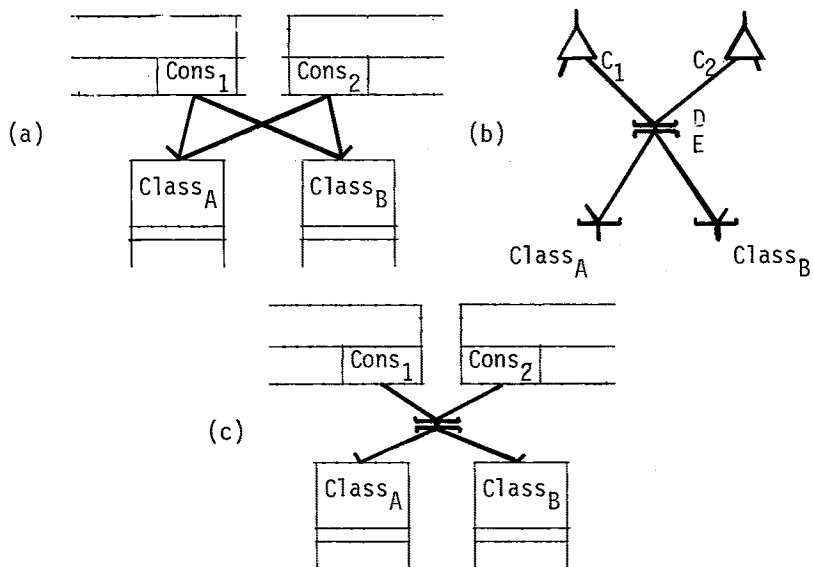
This notation is not intended to supplant other notation systems in all uses, but rather to supplement them. There are three

ways, for example, in which the stratificational relational network notation is superior to the box-diagrams.

For one thing, relational networks are superior as the basis for counting and measuring the relative simplicity of descriptions. Since the box-diagrams are not completely isomorphic with the corresponding relational networks, they do not lend themselves to any simplicity measure as simple to apply as that reported in Reich 1968 and Lockwood 1972. This means that if finding the simplest solution is a prime desire, one should resort to relational networks rather than box-diagrams.

The second area is related to the first, since the box-diagram notation as presented misses certain generalizations which are captured by the relational networks. In particular, it misses generalizations concerning upward and downward ORs operating together in a particular characteristic way. Consider the schema of Figure 8a, which shows two constituents connecting to the same classes (with the classes also having other functions as well). In the relational network system, this would be shown as in Figure 8b, which has the upward OR labeled "D" and the downward OR labeled "E" to represent the fact that two distinct constituents share realizations in these two classes. The deficiency could be remedied in the box-diagram system, of course, by introducing internal OR nodes, as in Figure 8c. It might be suggested, however, that such a step would be undesirable for the beginning analyses for which the box-diagrams were initially developed. Such a hybrid system might be more defensible in connection with the use of the system to display finished analyses.

Figure 8. *Complex OR-Relations*



The third area has to do with the relational nature of language, a theoretical point which many stratificationalists consider to be of fundamental importance. Since labels are in no way crucial to the internal structure of a relational network, that system may be taught as a means of getting across to students the point that language is simply a system of relationships containing no objects. While the explicit representation of connections between boxes makes labels less crucial in box-diagram notation than in algebraic notations, it is nevertheless true that the box-diagram system gives a greater focus to the notion of units as objects, thus obscuring this theoretical point. On the other hand, linguists who disagree with this viewpoint may find the box-diagram system more attractive for this very reason.

When one is emphasizing simplicity and the point that a language is a system of relationships, therefore, it is better to use a relational network. On the other hand, when one's aim is to develop and present practical solutions with less concern about theoretical purity, the box-diagram notation has considerable advantage over either algebraic systems or pure relational networks.

N O T E S

- 1 The equivalence with tagmemic notations is only rough, since tagmemics distinguishes function from form in its notations.
- 2 See Gleason 1965, pp. 142-151, for an understandable account of the Reed and Kellogg system.
- 3 Stimson's treatments of Chinese suprasegmentals (1967, 1968, 1969) are presented exclusively in stratificational algebraic notation, for example, but the stratificationalist can understand them only by constructing the equivalent graphs.
- 4 The course deals with surface syntax in the sense of stratificational lexotactics, which allows certain morphological variety to be abstracted out. This approach typically leaves both the order of inflectional morphemes and their realizational varieties to a lower stratum, for instance.
- 5 Glosses are to be included in vocabulary boxes when the language is likely to be unfamiliar to the intended audience, and regularly in the presentation of classroom solutions.
- 6 Following the approach suggested in n. 4, unordered ANDS may be used to indicate the association of stems and inflectional affixes. The morphotactics would then distinguish affixes as prefixes, suffixes, or simulfixes (Lockwood 1972:95-6), and distinguish various orders among prefixes and suffixes as necessary.
- 7 The notion of an arbitrarily sequential AND in semology is raised as a possibility by Lockwood 1972:154. No separate notation is presented there for it, but Lockwood and Ilah Fleming have both used a shaded unordered AND for this purpose, a device which both developed independently and have used in unpublished materials. In problems where this is used in syntax, it is probable that further research will find a difference correlated with discourse function among the orders allowed, so

this use may in effect be a makeshift to make up for the lack of data.

- 8 Based on an analysis of the data presented in Problem 177 in Merrifield, et al. 1974.

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IV

INTRODUCING JUNCTION GRAMMAR

JUNCTION GRAMMAR: THEORY AND APPLICATION

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I. PRELIMINARY REMARKS

Congregational fishing is an amusing sport to watch, but frustrating to participate in. A throng of fishermen attack the same expanse of water with vigor and straightway their lines become entangled. The participants then either tug angrily, exchanging accusations and unpleasanties, thereby creating a hopeless snarl, or they work together in a cooperative effort to discover the focal points of entanglement and free themselves.



Figure 1

If I understand the purpose of the LACUS Forum correctly, it is to provide a more productive and dignified method of disentangling a rather bewildering array of linguistic snarls, so that we may get on with the task of meeting the information and communication needs of a world society.

Although I am new to LACUS, I get the impression from reading its publications that its members are communicating with one another honestly and constructively. For this I congratulate

you and your leaders, and express my sincere appreciation to them for this opportunity to participate with you.

II. GENERAL ORIENTATION OF JUNCTION GRAMMAR

The purpose of this paper is to introduce you to Junction Grammar(JG), and relate it to other more familiar approaches to linguistics.<1> The name itself is suggested by the emphasis of the approach on the need to formalize such traditional notions of joining as conjunction, modification, and predication at a level of non-lexical representation not recognized heretofore. The JG model as a whole, however, is shaped by a number of other theoretically significant assumptions.

An important initial assumption of JG is that the scientific study of natural language presupposes a holistic concern with the physical bases of language (the human body and its environment), as well as the sociological and psychological implementations and manifestations of language. With regard to human anatomy, I assume further that the physiological specialization of diverse organs and tissues involved in linguistic activity presupposes a number of interacting information systems, each with its own distinctive code or data type (I shall use these terms interchangeably).

<1> An embryonic exposition of JG appeared in 1969 as a research monograph submitted to the BYU Research Division under the title "A Grammar of Subordinate Structures in English." A published revision of this work appeared much later. See Eldon G. Lytle, A Grammar of Subordinate Structures in English (The Hague: Mouton & Co., 1974). An improved formulation of the model appears in dissertation form. See Lytle, "Structural Derivation in Russian," University of Illinois/Champaign-Urbana, 1971. For a developmental sketch of JG, see Lytle, "The Evolution of Junction Grammar," Junction Theory and Application, Vol. 1, No. 1.

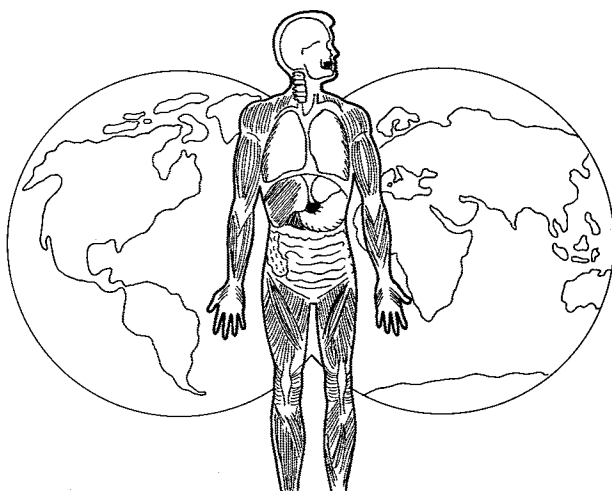


Figure 2

Permit me to clarify the JG notion of data type by drawing an analogy. In nature, we find that animals and plants group together as distinct species, and that the boundaries between them are rather firmly drawn. Thus, animals cross-breed within species and undergo transformation to some extent therein, but not between them.

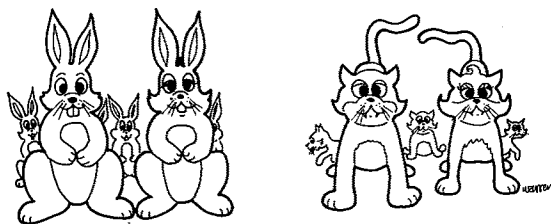


Figure 3

Linguistic data types appear to be similarly constrained by virtue of the functional diversity of the tissues and organs which constitute the human capacity for speech. For example, code designed to activate the musculature of the vocal tract

could not be used to drive the writing hand, nor to stimulate the neurological tissues of any "semantic" tract. From the point of view of junction theory, then, it would be unnatural to fuse these codes as though they belonged to a single representational system. Rather, it would be necessary to maintain them separately, in order to satisfy the unique content and formalism of each, and then, additionally, to provide a means for them to interact if necessary.

The failure of linguistic science to do this systematically is largely responsible, in my opinion, for the embarrassing absence, at this late date, of the at least relatively unified base which other more prestigious areas of scientific inquiry enjoy. Some will counter, perhaps, that linguistics is a young science, and that the present diversity is healthy.

Excuses aside, I am firmly convinced that the crux of the problem is rooted in the naive practice of "cross-breeding" data types in unnatural ways. While the resulting offspring are plentiful, and, to be sure, captivating in their infancy, and promising in their youth, they have a way of aborting prematurely, or developing fatal post-natal deformities. Still others mature as impotent mules, as it were, or as "linguicorns" which have no counterparts in reality but exist only in the world of what might be termed "mythological linguistics."

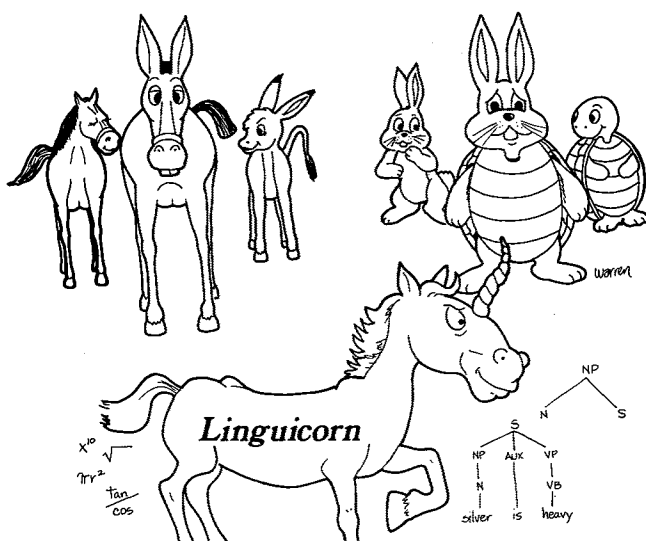


Figure 4

Assuming, however, that human language is a natural phenomenon, and that we wish to describe it in terms of what it is, rather than in terms of certain similarities it may bear to other phenomena, the following general objectives seem appropriate for linguistic science:

- (1) To identify the data types operative in natural language;
- (2) To establish their association with specific organs and/or tissues of the human body;
- (3) To identify their information content;
- (4) To devise appropriate formal notations for each of them;
- (5) To discover and describe the encoding/decoding linkages which intermediate between them;
- (6) To study the socio-psychological-communicative manifestations and implementations of the various interacting data systems.

Junction Grammar looks to these objectives for general guidance. Of course, they constitute a gargantuan task and infringe upon sister disciplines in obvious ways. However, it is essential to approach linguistic science from a broad perspective, if we expect the contribution of individual researchers to accumulate systematically and form a cohesive whole.

III. THE CURRENT WORKING MODEL

A sketch of the current JG working model is given in Figure 5. It corresponds to the following conception of interacting data systems:

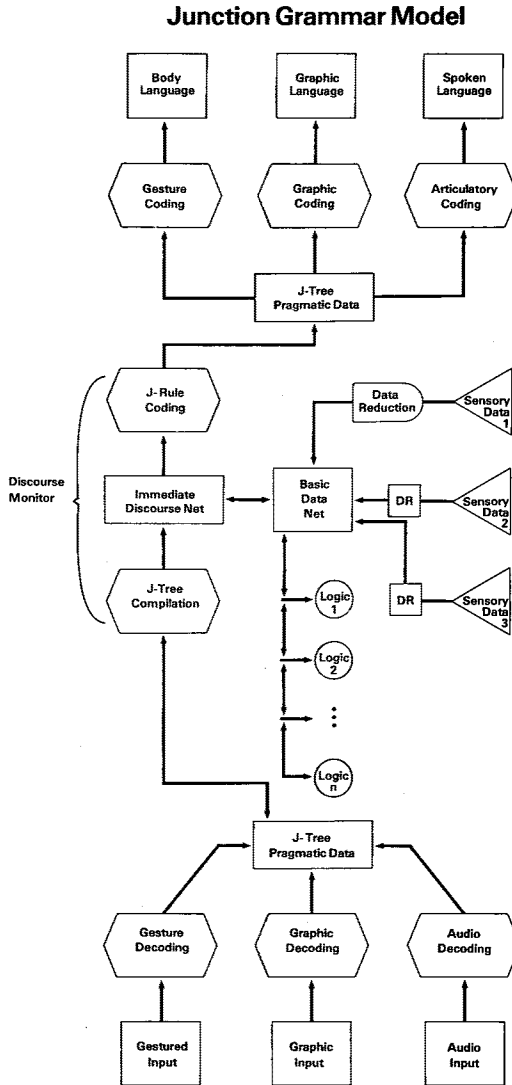


Figure 5

(1) Physical stimuli contact the various human sensors, which by virtue of their physiological design, reduce the input data in a human-specific way to a distinctive subset of the input. We may refer to this in the aggregate as SENSORY DATA, noting that acoustic data, visual data, olfactory data, etc. constitute distinct data systems within it. The linguistic relevance of these

data types is amply demonstrated by expressions such as THIS WHOLE AFFAIR STINKS; YOUR GENEROSITY TOUCHES ME DEEPLY; IT LOOKS LIKE TROUBLE; etc.<2> Dreams and other hallucinatory phenomena, as well as experimentation with brain probes, indicate that sensory data is stored in a form compatible with the neural structure of the respective sensors. The task, then, is to identify each sensor and devise a notation which describes the information content and structure of the data type which activates it.

(2) Since we do not necessarily hallucinate as we speak, it is postulated that sensory data is converted into a second data type in which individual entities are reduced to numbers, as it were, and natural classes are constructed by abstraction of distinctive attributes from the various sensory codes. Let us refer to this second general data type as BASIC DATA.

Whereas sensory data, constituting, as it were, raw information, is presumed to be neutral with regard to such notions as cause-effect and condition-consequence, basic data is not. It is subjective data, having been coded in conjunction with human interpretive processes by each separate individual in the context of his unique experience. It seems probable that an assortment of logical processors complement the basic data system, and that subsets of this data are coded out as input to them with the particular content and form each requires. I assume further that basic data is central to the construction of information nets which document general world knowledge and experience. Although the basic data system of JG remains for the most part an uncharted wilderness, initial studies in this area have been made.<3>

(3) PRAGMATIC DATA is a non-lexical data type central to the socio-communicative functions of natural language. It is also the immediate basis from which the outward forms of language are coded. This data system has been investigated extensively over the past ten years with exciting results, to which we return later in the discussion. I have termed this data PRAGMATIC because it incorporates information relative to the immediate practical needs of a discourse situation.

(4) Pragmatic data and its linkages with what may be termed SIGNATIVE DATA TYPES have been the focal point of our research to

<2> Marcel Danesi, "English Words Derived From Geometrical Terminology." The Fifth LACUS Forum, 1978.

<3> Lee Meador, "Information Processing Stimulated by Nouns." BYU Linguistics Symposium Proceedings, 1977. See also Kenneth R. Lee, "The Information Net in JG--A Discovery Aid." BYU Linguistics Symposium Proceedings, 1978.

date.<4> Signative data types include those necessary to stimulate body language, as well as those required to activate the vocal tract, the writing hand, etc.

In summary, then, we have thus far identified four general types of linguistic code:

- (1) SENSORY DATA
- (2) BASIC DATA
- (3) PRAGMATIC DATA
- (4) SIGNATIVE DATA

Corresponding to these we either acknowledge or postulate the existence of specialized physiological mechanisms which may be referred to in the abstract as tracts or nets, e.g. the "basic net," the "discourse net," the "pragmatic tract," etc. While it is beyond the scope of this paper to discuss in detail the approach to discourse simulation associated with our research, it will be helpful to bear the following sketch in mind (refer to Figure 5).

In the vernacular of JG, a pragmatic J-tree (formally a graph) is coded up in response to stimuli from a discourse monitor. This pragmatic graph in turn activates orthographic, articulatory, and/or kinesic coders, which produce their respective types of signative data. Their outputs, when executed by the appropriate physical devices, yield external acoustic, visual, or tactile signals which are perceived and decoded by recipient(s) to recover the pragmatic graph (J-Tree). The manner in which this graph is structured then stimulates what we refer to as its COMPILATION, a process which brings about modifications in a mini net of basic data which has been activated to serve the needs of the immediate discourse. The immediate discourse net in turn interacts with a general net of basic data.

It is important to understand that within the JG framework data modification/transformation may occur within data types, but not between them. Thus, except, for example, net modification, transformation is supplanted by coding.

Notice also that the model described does not include, among other things, the customary syntactic and semantic components.

<4>See Alan K. Melby and Jill E. Peterson, "An Annotated Junction Grammar Bibliography." Junction Theory and Application, Vol. 1, No. 1.

Rather, the modules are simply identified with respect to data type and coding interfaces. How, then, does such a model relate to traditionally recognized areas of linguistic inquiry?

IV. SEMANTICS IN JG

There is no semantic component per se in the model. The "meaning" of an utterance is considered to be what a person experiences throughout the data systems as a consequence of what it stimulates in them collectively. If purely acoustic phenomena such as rhythm, rhyme, cadence, sound symbolism, etc. evoke responses independently of any conventional symbolic associations, then those responses are considered to be part of the meaning of an utterance. This point of view is supported by the homage rendered such phenomena in literature, especially poetry, not to mention the role of chants, verbal charms, etc.

Then, of course, there is the pragmatic J-tree which, by virtue of the explicit information it contains, impacts the immediate discourse net and the basic net (which documents the semantics of reference and our encyclopedic accumulation of information about our experience and the world), augmenting or otherwise altering information there and setting into motion the calculation of truth values, probabilities, and so on. Linkages to sensory data also occur, eliciting intermittent hallucinatory flashes in our minds.

Thus, JG makes the tacit assumption that there are multiple semantically relevant information systems operative in language. This point of view explains an otherwise paradoxical aspect of human linguistic behavior. On the one hand, in the role of author, poet, debater, etc., we emphatically insist on the significance of every detail of a given text, suggesting that there are actually no true synonyms, that a particular arrangement of grammatical relations has been structured precisely for its unique texture and semantic effect which it alone can evoke! But, on the other hand, are we not equally inclined, following such displays of semantic sensitivity, to justify some loose paraphrase containing totally different vocabulary and grammatical structure, asserting that "it means the same thing" as some other sentence? The fact is that we are "multi-bivalent" with regard to semantic judgements.

Resolving a Semantic Paradox



Multiple Data Systems With Different Criteria of Distinctiveness

Figure 6

Such behavior is not paradoxical, however, in the context of the JG model. Because every utterance has linkages to multiple systems, one may very well tend to focus on different systems under different circumstances. And since the criteria for distinctiveness differ from system to system, semantic judgements shift with each change of focus.

For example, if one considers sensory data as the stimulus for a descriptive utterance, and attends to its great detail, a wide range of paraphrases may seem essentially equivalent, because each is a valid interpretation of that data. Similarly, if one attends only to basic data where the criteria of distinctiveness are not pragmatically oriented, then a wide variance in terms of pragmatic information is tolerated. On the other hand, however, if one is attending to the pragmatic precision of an utterance necessary to communicate with persons *x*, *y*, and *z*, in a given discourse environment *q*, then the margin of pragmatic tolerance shrinks considerably.

Of the various data types postulated, sensory data may be said to be the most objective, it being provided by common hardware, so to speak, in a form least dependent upon individual experience. Basic data is yielded via an interpretive coding process influenced both by the socio-linguo-cultural environment and personal experience. Thus it may be said that basic data contains more human-specific information than does sensory data. But pragmatic data, drawing as it does upon the content of basic data, plus an additional increment of person-specific information

from a particular communicative point of view, would appear to impose the most discriminating criteria of distinctiveness of all the data types.

Now observe that this conclusion, involving as it does pragmatic data, which is presumed to govern the external forms of language, and which through its reverse linkage to basic and sensory data is in a sense "semantically accumulative", is not in harmony with approaches which minimize the semantic significance of "surface structure" while searching elsewhere for something to call semantics. On the other hand, however, it explains perfectly the tendency of those who have recently become sensitized to the semantic relevance of external form and are designing models which take this into account.

Having considered semantics within the context of the JG model, and seen that there are multiple semantically relevant data types, let us next consider the question of syntax within the JG framework.

V. SYNTAX FROM THE JG PERSPECTIVE

The assumptions set forth above regarding the need to maintain data types independently, while at the same time providing for coding linkages between them, lead to some rather disturbing conclusions regarding syntax and the troubles it has experienced.

As a point of entry to this discussion, consider the nature of a cryptographic sequence. The form and content of such a sequence is a function of the form and content of some primary data system, i.e., a base, plus a coding algorithm. It follows, then, that the explication of any cryptographic string presupposes a knowledge of both the primary system and the algorithm.

The first grammarians, desiring to give an account of the outward form of their languages, were in a sense cryptographers. They didn't recognize their task as such, of course, because, though endowed with the ability to code and decode language, they were not overtly aware of the existence of the base from which language as they knew it was coded. The situation, then, was for them doubly difficult---in order to succeed at their conscious task, they needed first to DISCOVER the primary data system, and then BREAK THE CODE, that is explicate the relationship between that system and the surface form of their languages.



Figure 7

Unfortunately, the actual base went largely undiscovered, although certain truths about its structure were verbalized which modern linguistic science failed to include in its formulations (the various forms of joining previously alluded to and to which we shall return directly). Consequently, grammarians, rather than viewing their task as one of discovering a covert coding base and then relating the surface forms of language to it, dealt with information both from the base and its external manifestations as a single data system.

Failure to discover the base is attributable, I believe, to a flaw in human linguistic perception, which for want of a better term I shall term the "presence" illusion. This phenomenon is analogous to a familiar optical illusion--objects at considerable depth in a deep pool or stream appear to be immediately present in the water. The linguistic counterpart of this is simply that meaning appears to be immediately present at the surface of language also. In fact, the sense of a word is such an integral part of it perceptually, that we experience something akin to the visual "death" of a word from time to time, when for some unknown reason the graph loses its symbolic link and suddenly appears strange and foreign to the eye.

The Presence Illusion



Figure 8

Early on, of course, the presence illusion was partially defeated. People came to realize that the outward forms of language were symbols for internal units of meaning, which existed independently of external forms. With respect to another vitally important aspect of meaning, however, the presence illusion persisted--relational senses (subject, object, modifier, etc.) were still considered to be "present" among the external forms of language. This is evidenced by traditional methods of sentence diagramming, not to mention those famous descriptive devices known as phrase markers.

We now come directly to the point: The presence illusion has been perpetuated in our day under the name of syntax. While, as noted, it is no longer the case that the sense of external forms is considered to be present in the forms themselves, syntacticians still proceed as though the relational senses perceived in language were actually present among lexical symbols, rather than among the non-lexical units of meaning to which they are linked. Or to put it differently, modern syntax has inherited from traditional grammar the practice of stating with reference to a given lexical unit in a sentence not only that it belongs to a particular inflectional category and has certain properties relating to co-articulation when incorporated into the articulation stream, but also that it has the pragmatic function of BEING a subject, a predicate, or a modifier.

Now it may SEEM TO BE a matter of insignificance, to say that an external form IS a subject rather than that it corresponds to a unit with this function in the base code, but that seeming insignificance is also an illusion. Our research in JG has taught us that The failure to remove relational senses from the domain of lexical representation to the domain of pragmo-semantic representation is a theoretical error of the same magnitude as (and corollary to) the failure to differentiate a word and its sense(s).

Consider also the following specific points:

(1) Aside from the remark already made with regard to the semantic relevance of multiple data types, the question of whether syntax is independent of semantics (autonomous) becomes a non-question if one acknowledges that what is called "syntax" includes within the domain of its notation, depending on the particular formulation, a sprinkling of basic data, and healthy portions of pragmatic data, the data type which includes not only person-specific information, but also situation-specific information.

(2) Further, the realization that "syntax" does not correspond to any natural linguistic data type, but is in fact a mixture of several of them, explains its "mule-ish" impotency to produce for any of the several data types it attempts to combine the natural notational systems actually required. We have found that pragmatic data requires a different form and content than orthographic or articulatory data, and that notations which attempt to combine them tend to conceal vital aspects of each while ultimately failing to do justice to either.

*Junction Grammar
Perspective of
Syntax*

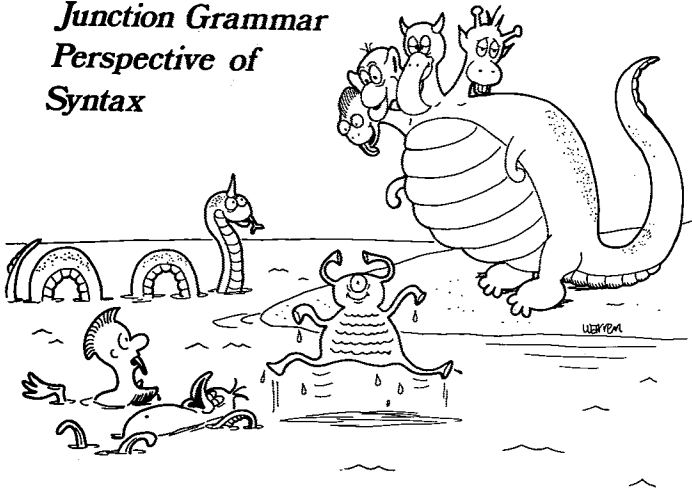


Figure 9

Now observe that given a situation in which a "congregational effort" is devoted to the elaboration of such a "syntactic" notation, it is predictable that some participants would argue in favor of devices needed to describe one of the data types or coding linkages involved, while others would counter with arguments for whatever might be required to support other ingredients of the mixture. Hence the heterogeneous and fragmentary nature of the grammars thus far produced by syntactic models.

VI. PRINCIPLES OF NOTATION

In addition to the problem of mixing data types, there are other equally serious entanglements to be dealt with in the area of linguistic notation. A summary statement of additional aspects of the rationale applied in JG is provided in the following paragraphs.

Given some entity, one intuitively categorizes it on the basis of the properties it exhibits, these being determined by how it is internally constituted. Assuming that linguistic notation should reflect the basis of this intuitive capability, it follows that any category label used in a notation is an abbreviation for the internal content which determines that category. It further follows that if the specifications of content which determine the category are notationally present, then its label is a redundancy and may in principle be omitted, although it is often useful to retain labels as a means of improving notational "visibility."

However, given a structure of entities of known category, combinatorial patterning alone is not sufficient in many cases to determine the respective functions of the entities with regard to each other. Thus, the functional roles of the nominal constituents in the structure $N \rightarrow N N$ are not specified by a rewrite rule in which only concatenation is expressed: either UNCLE JOHN or DOORKNOB fits the pattern, but the relational senses (functions) perceived in the pragmatic base code are certainly not the same. Moreover, it is often the case that constituents are used in a way which is incompatible with their categorial content. Thus, a proper nominal can function as though it were common, if it is functionally related in the required way to other elements, e. g. THE HENRY JAMES THAT I KNOW. The fact (1) that categorial patterns are often functionally ambiguous, plus the fact (2) that it is a common phenomenon for constituents to function abnormally, makes the notation of functional relations, or, as we refer to them, junctions, indispensable.

Translating this into more familiar terms, if tree-oriented notation is used, it must show more than mother-daughter relations (compositionality) -- sibling relations must also be shown. In other words, the usual branching pattern must be augmented with the equivalent of a distinctive line joining the constituents of each branch at the base, as it were.

Similarly, if rule- or formula- oriented notation is used, a function/junction/operation must be given to specify how its elements are joined. In the absence of junctional specification, or if a constituent is cited out of context, then functional node labels are necessary. Such labels are unnecessary and redundant, however, if junctional specifications are properly provided.

If net notation is used, an adequate variety of connections (junctions) must be utilized, and care must be taken to distinguish notationally, not only between compositionality within a data type and coding realization between data types, but also between specification of variables within a data type and realization between data types. In other words, in networks, one must be concerned, not with just two phenomena (compositionality and coding realization), but with three (constituent compositionality, variable specification, and coding realization).

In general, it is my observation that the junctional specificity of linguistic descriptions (as opposed to compositional specificity) is often neglected and can't in fact be determined at all unless unambiguous categorial patterns happen to be given. In other instances, one or two junctions are used for everything, or constituents are simply concatenated, or compositionality, specification, and realization are confused and/or not notationally distinguished.

VII. INTERIM SUMMARY

Thus far I have emphasized the JG postulate that data types having distinct form and content should be maintained separately while attending to the coding interfaces required to intermediate between them. We noted that, from this point of view, semantics is an accumulative, multi-system phenomenon rather than something that fits neatly within a single component, and that syntactic formulations constitute an unnatural combination of pragmatic data and other data types.

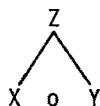
We also likened the task of early grammarians to the task of the cryptographer. It was noted that their task was, in effect, to discover the coding base of natural language, and then to relate external form to that base. While the illusion that word and relational senses were present in external form itself interfered with the successful accomplishment of that task, these folks did, as previously suggested, discover and discuss certain fundamentals of structure which modern linguistic approaches have failed to elaborate. In the following paragraphs I will attempt to demonstrate how, by elaborating an appropriate notation for these traditional ways of joining pragmatic constituents, powerful generalizations can be stated which simultaneously explain both matters of external form and a range of interesting semantic phenomena.

Let us now consider how such traditional notions as predication, subordination, and coordination, which we shall refer to as ADJUNCTION, SUBJUNCTION, AND CONJUNCTION, respectively, can be incorporated into a non-lexical notation for pragmatic data which makes possible the statement of generalizations relevant to both external form and meaning which seem to have been overlooked by other approaches.

VIII. PRAGMATIC DATA

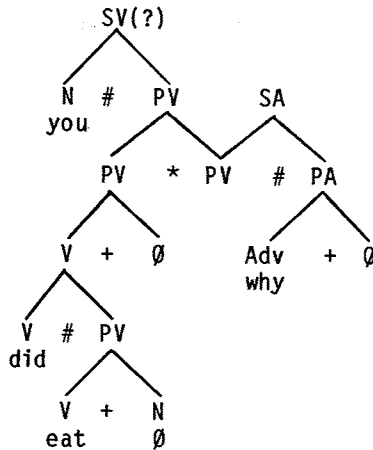
In accordance with the principles of notation previously set forth, we advance as the basic junction rule (J-Rule) format and corresponding graph segment the expressions

$$X \circ Y \models Z$$



where X, Y, and Z are category labels for the internal content of nodes; "o" is a junction which specifies the functional roles of X and Y with regard to each other; and "models" assigns a category label to the constituent (X o Y) in terms of its internal content. It is presumed that the entities X and Y entering into the junction will belong to the same data type, and yield Z of the

Pragmatic graph for Why did you eat?



Words represent sememes. There is no lexical data in semantic trees.

Figure 11

Compare the representations of Figures 10 and 11. Observe that the pragmatic constituents WHY/DID/YOU, which are not directly joined in Figure 11, are fused into a single word in Figure 10. DID and YOU, in fact, correspond to the consonant /3/ and the vowel / /, respectively, in the final syllable of the word. Articulatory reduction, of course, while characteristic of live speech, occurs within the model without any alteration of pragmatic data.<5>

Notice that each representation is sufficient in its own domain. There is neither reason nor opportunity to combine them, since to do so would compromise the integrity of both. To insert articulatory word-graphs at the terminal nodes of a pragmatic graph would on the one hand destroy its sememic references to the data nets, and on the other hand deprive the word graphs of their supra-segmental connections with each other. We shall consider

<5> For a further discussion of the treatment of articulatory data in JG, see Lytle, "Junction Theory as a Base for Dynamic Phonological Description." BYU Linguistics Symposium Proceedings, 1976.

directly the nature of the coding interface between pragmatic and articulatory data. For the moment, however, let us return to the question of adjoining, conjoining, and subjoining within the domain of pragmatic data.

In general, adjunction joins units from distinct categories, and yields a composite unit whose category does not correspond to that of either unit entering into the junction. Thus, the PREDICATE is a different category than either the VERB or NOUN entering into its composition.

The individual junction patterns group together into distinctive combinations to form cohesive functional units of various kinds. These are referred to in the vernacular of JG as junction templates. Thus, the adjunctions "+" and "#" occur in tandem to form the STATEMENT template (SX). It is the particular kind of adjunction used which results in our perception of some nouns as objects and others as subjects. The SX template is depicted in Figure 12.

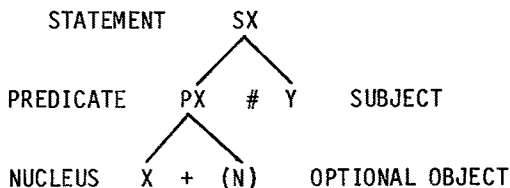
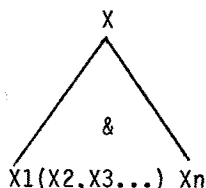


Figure 12

In junction grammar, however, the nucleus of the SX template (given as X) is a variable ranging over the categories V(verb); ADJ(adjective); ADV(adverb); P(preposition); and, in some formulations, N(noun). This makes it possible to give pragmatic graphs directly for "telegraphic" statements which have no verbal nucleus, e.g. YOU IDIOT; WITHOUT SCRUPLES, THAT GUY; ME SAD?; etc. The node labels of the SX template are specialized to reflect the category of the nucleus, as illustrated in the Figure.

Conjunction requires that the constituents entering into it be equal or at least very proximate categorially. Thus, one can conjoin nouns to nouns, verbs to verbs, and statements to statements, but not nouns to verbs, verbs to statements, etc. Of course, this form of junction is iterative, yielding both open and closed constituents, e. g. JOHN AND HENRY/JOHN, HENRY, ETC. There are numerous specializations of conjunction, including the AND's, OR's, BUT's, and other more specialized forms utilized in the verbal rendition of, for example, mathematical expressions, like FIVE PLUS TWO.



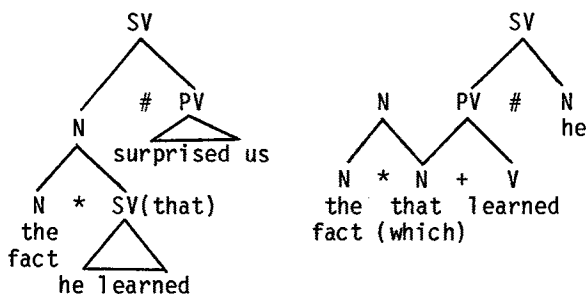
The Basic Conjunction Template

Figure 13

Subjunction, corresponding roughly to what grammarians have discussed variously as subordination and/or modification, occurs in great variety, and when properly understood and formulated, creates order out of chaos for a remarkably large corpus of natural language data.

We have noted that adjunctions join constituents of distinct category and yield constituents of distinct category, and that conjunctions, in general, join constituents of the same category. Subjunction, on the other hand, functions in such a way that one of the constituents entering into the junction passes its category to the resultant composite unit. Thus, in the subjunction corresponding to CENTURIES OLD, it is the adjective OLD which categorizes the structure as a whole, while for the expression THE VERB TO RUN, the subjunction uses the nominal constituent to categorize the whole.

Another distinctive property of subjunction is that elements so joined either overlap one another referentially or interact in such a way that the reference of one defines that of the other. For example, in the expression THE FACT THAT HE LEARNED SURPRISED US, the ambiguity is resolved by either subjoining the clause THAT HE LEARNED to FACT, where the overlap of reference occurs between FACT and the entire clause as its complement ($N * SV \equiv N$), or by subjoining only THAT(WHICH) to FACT as a relative pronoun ($N * N/PV \equiv N$), which identifies some fact not explicitly mentioned. The respective pragmatic graphs are given in Figure 14. Please bear in mind that the "words" appearing as terminal elements in pragmatic graphs represent pragmo-semantic values, not lexical entries.



A Noun Complement Contrasted
With a Relative Clause

Figure 14

The complement reading utilizes what we term a "full subjunction," as opposed to the "interjunction" of the relative clause reading. Notice that interjunction entails the use of the same node by two distinct J-rules ($N * N \equiv N$ and $V + N \equiv PV$). This is reflected in the format of the respective J-rules (for $N * SV \equiv N$ read N subjoin SV yields N, and for $N * N/PV \equiv N$ read N subjoin N of PV yields N).

Now observe that if $N * SV \equiv N$ corresponds to noun complement constructions, then $ADJ * SV \equiv ADJ$ would require a clause (and here it comes) SUCH THAT IT IS EMBEDDED TO AN ADJECTIVE HEAD.

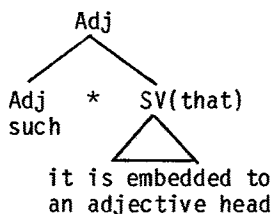


Figure 15

Similarly, the rule $ADV * SV \equiv ADV$ would require us to subjoin a clause (and here it comes) SO THAT IT FUNCTIONS AS THE COMPLEMENT OF AN ADVERB.

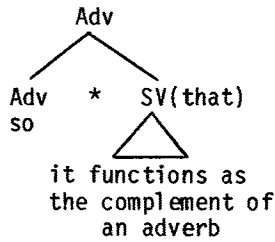


Figure 16

Observe further that if $N * N/PV \equiv N$ corresponds to the interjunction of an N in a superordinate construction to the object of a verb in a relative clause, then the rule $N * N/SV \equiv N$ would interjoin a noun to the subject of a relative clause, as in THE PERSON WHO WON THE PRIZE.

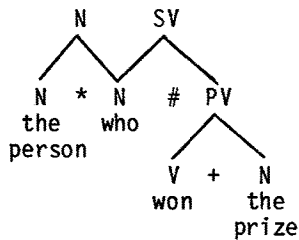
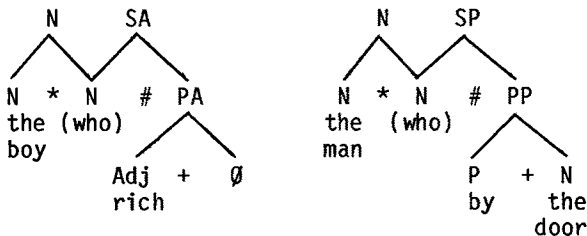


Figure 17

Similarly, the rule $N * N/SP \equiv N$ would interjoin a noun to the subject of a prepositional statement, as in THE MAN BY THE DOOR; and the rule $N * N/SA \equiv N$ would interjoin a noun to an adjective statement, as in THE RICH BOY.



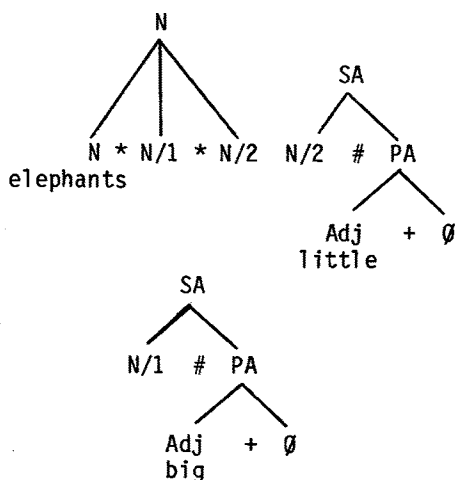
Interjoined Adjective and Prepositional Modifiers

Figure 18

In each of these cases the antecedent represents a class of entities (MAN, BOY, etc.), and the N intersect of the subordinate construction subjoined to it represents an element, or, in certain cases, a subset, of that class. This structure is given for phrases, as well as clauses, because this duality of reference is present in both types of construction, whether the N intersect is lexically coded or not.

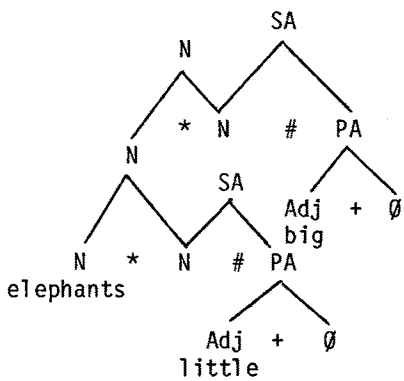
Aside from the important semantic generalization captured by this formulation, there is another equally important reason for not joining simple adjectives, adverbs, and prepositional phrase modifiers directly to a head independently of the statement template: these rules are needed for other constructions. For example, you can't fully subjoin, say, an adjective to a noun ($N * ADJ \equiv N$) to represent a modifying adjective (RICH BOY), because such a junction is required to account for the nominalization of adjectives (RICHNESS).

Interjunctions, in addition to occurring individually, may also occur iteratively or recursively. Thus, BIG LITTLE ELEPHANTS is a logical contradiction if the interjoined SA's iterate. If they are recursive, however, then no contradiction occurs. We are simply talking about a subset of little elephants which are relatively big within the set. In the latter instance, of course, BIG would be articulated with heavy stress.



Iterated Adjective Modifiers

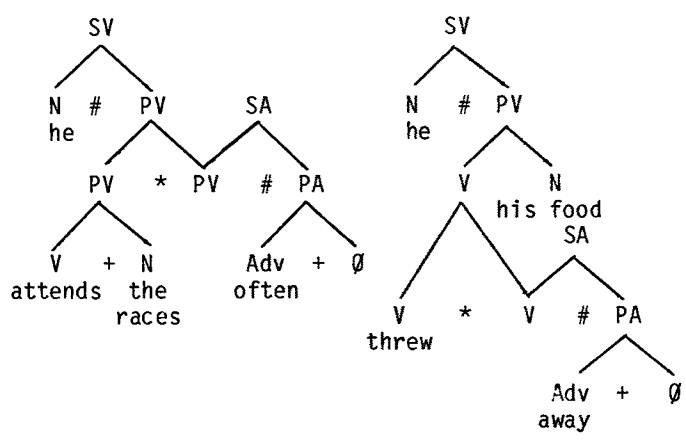
Figure 19



Recursive Adjective Modifiers

Figure 20

Thus, in pragmatic data, phrasal modifiers are symmetrical in their structure to relative clause modifiers. If, for example, a grammarian states that OFTEN in the sentence HE ATTENDS THE RACES OFTEN "modifies" the predicate ATTENDS THE RACES, then, in terms of JG, the rule $PV * PV/SA \rightleftharpoons PV$ has been used to interjoin an adverbial statement to the PV node in the pragmatic graph.

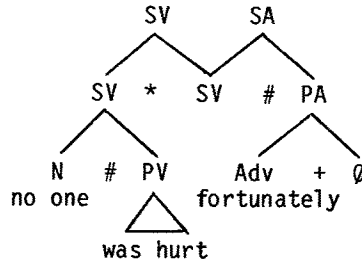


Interjunctions to PV and V

Figure 21

The rule $V * V/SA \rightleftharpoons V$, on the other hand, would yield a particle interjoined to the verb itself, as in HE THREW AWAY ALL HIS

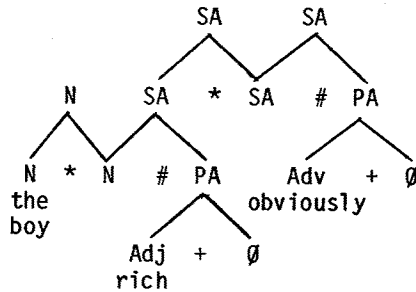
FOOD. And the rule $SV * SV/SAv \equiv SV$ would yield an adverb modifying at sentence level, as in FORTUNATELY, NO ONE WAS HURT.



Statement Level Modifier Interjoined To An SV

Figure 22

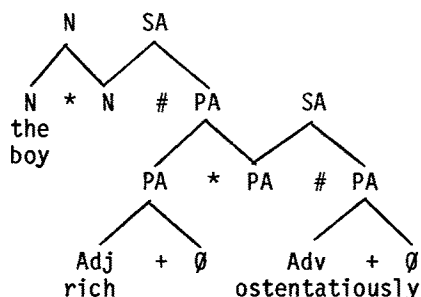
Notice that there is a direct correspondence between classes of modifiers and the particular J-rules required to represent them. Thus, for THE OBVIOUSLY RICH BOY the rule $SA * SA/SAv \equiv SA$ would be required, since OBVIOUSLY is a statement level modifier.



Statement Level Modifier Interjoined To An SA

Figure 23

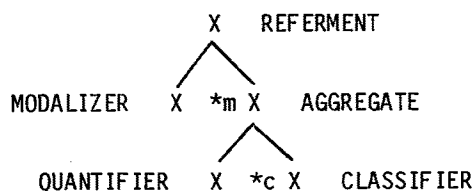
On the other hand, THE OSTENTATIOUSLY RICH BOY would require $PA * PA/SAv \equiv PA$, since OSTENTATIOUSLY is a predicate level adverb of manner.



Predicate Level Modifier Interjoined To PA

Figure 24

Another junction template of prime significance is what we term the referent. See Figure 25.



Grammatical Functions Of Referent Nodes

Figure 25

This template implements subjunctions of various kinds for purposes of referential refinement, and appears to occur for all the node categories. The functional labels of the various nodes in the referent, as shown in the illustration, are CLASSIFIER, QUANTIFIER, AGGREGATE, MODALIZER, and REFERENT, and are held to be as semantically significant as those associated with the adjunction template, i.e., SUBJECT, OBJECT, etc. For example, WE TWO STUDENTS corresponds to the referent of Figure 26.

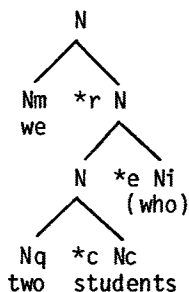
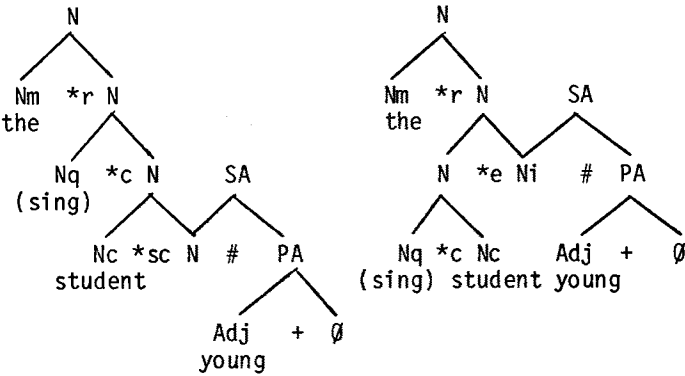


Figure 26

Notice that lexical part-of-speech distinctions (personal pronoun/article/title, cardinal pronoun, and common noun) are correlated with positions in the referment. The junction **r* corresponds to definacy, effecting a recovery from the net; **e* enumerates the individual students in question; and **c* classifies TWO as belonging to the set of students.

One can feel the relational sense of a word change as its pragmo-semantic counterpart is moved about in the referment. Thus, SOME in SOMEBODY reflects a modalizing function, but in HE NEEDS SOME HELP, it reflects a quantifier function. Similarly, cardinal numbers generally quantify, but not always: in Mormonese, there are elders, priests, teachers, deacons, and "seventies," so-called because there are (here it comes) SEVENTY SEVENTIES in each Quorum of Seventy (the first occurrence of the term reflects the quantifier function; the second reflects the classifier function. The modalizer function is reflected by the same term in SEVENTY NEAL MAXWELL, however, since social roles (titles), as well as discourse roles, are given as modalizers.

We observed in connection with the basic adjunctive template that modifiers interjoined at V, PV, and SV had distinct semantic properties. The same principle holds for interjunctions to the referment template. Those at the classifier have generic reference, while those at the aggregate have specific reference. For example, depending upon context, THE YOUNG STUDENT could refer to young students generally, or to a particular individual. Graphs for both readings appear in Figure 27.

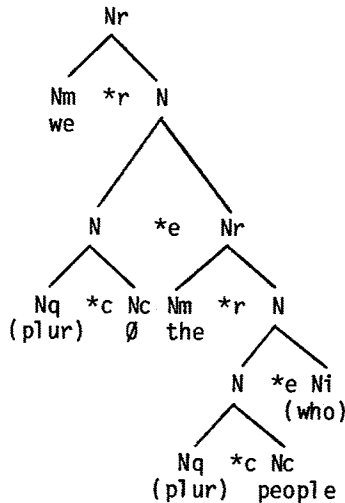


Generic Versus Specific Referment Structure

Figure 27

Interjunctions to the quantifier, by contrast, constitute the class of comparative/superlative modifiers plus others relating to the extension of the focal referent, as in MORE MONEY THAN HE NEEDS; ENOUGH FOOD TO EAT; etc.

Although the scope of this paper does not permit more than the brief introduction to pragmatic structure presented here, there is one additional property of referments of such importance that it deserves comment: they, like the STATEMENT (the basic adjunctive template), have the property of recursion, i.e., referments may be embedded at particular positions in other referments to yield a variety of complement constructions. For example, the expression WE THE PEOPLE subjoins one referment to the aggregate of another, as illustrated in Figure 28.



Referments Are Often Recursively Structured

Figure 28

It is possible, using the property of referment recursion, to give plausible pragmatic graphs for such horrors as COME ON UP FROM OUT OF DOWN IN UNDER THERE. We shall of necessity, however, defer discussion of such constructions to a subsequent writing.

With the foregoing as background, let us now consider how one "does linguistics" within the domain of pragmatic data. Our experience is that two complementary techniques produce effective results: (1) Generalization; and (2) Specialization. In the following paragraphs we illustrate how these are used.

There exists a rule schema for each of the major junction types. Thus, given the formulaic expressions,

- (1) $X + Y \equiv Z$ ADJUNCTION
- (2) $X \& X \equiv X$ CONJUNCTION
- (3) $X * Y/D \equiv Z$ INTERJUNCTION
- (4) $X * Y \equiv Z$ FULL SUBJUNCTION

a table of pragmo-semantic node labels, and a set of appropriate formal constraints, computer algorithms can be devised which generate schemata for the general junction formulas. An excerpt from the output of such a computer program is depicted in Figure 29. Given such a list of joining possibilities, obtained by

VALID SUBJUNCTION RULES OF THE FORM $XE-- * YF-- =. XE$

FURTHER CONSTRAINTS OF SUBJUNCTION

1. If $E \text{ GT } 1$ THEN $F = 1$ OR $XE = YF$.
2. If $F \text{ GT } 1$ THEN $E = 1$ OR $XE = YF$.

SPECIFIC RULES WHICH PASS ALL CONSTRAINTS

$N1-- * N1-- =. N1$
 $N1-- * V1-- =. N1$
 $N1-- * A1-- =. N1$
 $N1-- * P1-- =. N1$
 $N1-- * N2-- =. N1$
 $N1-- * V2-- =. N1$
 $N1-- * A2-- =. N1$
 $N1-- * P2-- =. N1$
 $N1-- * N3-- =. N1$
 $N1-- * V3-- =. N1$
 $N1-- * A3-- =. N1$
 $N1-- * P3-- =. N1$
 $V1-- * N1-- =. V1$
 $V1-- * V1-- =. V1$
 $V1-- * A1-- =. V1$
 $V1-- * P1-- =. V1$
 $V1-- * N2-- =. V1$
 $V1-- * V2-- =. V1$
 $V1-- * A2-- =. V1$
 $V1-- * P2-- =. V1$
 $V1-- * N3-- =. V1$
 $V1-- * V3-- =. V1$
 $V1-- * A3-- =. V1$
 $V1-- * P3-- =. V1$

EXCERPT FROM J-RULE SCHEMA

Figure 29

deductive generalization, it is both productive and instructive to search natural language data for expressions which satisfy the predicted patterns.

Let us consider a real-life case. Among the rules projected by the first deduction I attempted, was the interjunction $SV * N/SV \equiv SV$. The relational import of this junction is that a main clause overlaps (intersects) the subject nominal of a subordinate clause. This meant, in effect, that I was looking for a relative pronoun whose antecedent was an entire clause. That, of course, is precisely the situation which holds in sentence relative constructions, e. g. THE ATTEMPT SUCCEEDED, WHICH SURPRISED US. I was immediately struck by the fact that the rule for what many had considered to be a problematic construction fell out as effortlessly as any other interjunctive pattern.

It next occurred to me that if WHICH could overlap with a clause, it could probably overlap with other constituents as well. The following rules from the schema predicted that such was true, and the confirmatory data was not hard to come by:

1. $PV * N/SV \equiv PV$ THEY DEFEATED DALLAS, WHICH WAS A DIFFICULT TASK.
2. $PP * N/SV \equiv PP$ IT WAS ON THE TABLE, WHICH IS WHERE I PUT IT.
3. $V * N/SV \equiv V$ HE BILKED HER, WHICH IS JUST WHAT YOU DID TO ME.

So far, so good. But back to the sentence relative construction. If an SV (a clause) could serve as the antecedent for a nominal constituent, then why not for, say, an adverb:

4. $SV * ADV/PA \equiv SV$ IT WAS COLD, SO I PUT ON MY COAT.

This was exciting: SO in (4) was nothing more nor less than a "relative pro-adverb" with an SV antecedent. My attention was then drawn to another ridiculous-looking rule:

5. $PV * PV/SV \equiv PV$ WE ABHOR WAR, LIKE YOU.

The prediction of this rule is that two clauses can overlap on the same predicate, i.e., that a subordinate clause could consist of a subject nominal adjoined to a "relative pro-PV". At first I was convinced that this was a spurious prediction, but then the one cited jumped out of print at me.

These, then, are examples of the technique of deductive generalization made possible by the schematic nature of pragmatic junctions. The possible patterns number in the thousands. We

have verified many, and expect to verify many more as we become sensitive to more and more of what natural languages have to offer.

Another technique, which we have successfully used to complement the first, is referred to in JG as junction specialization. JG assumes tacitly that while generalization in linguistic description IS important, its importance has been emphasized to the detriment of the equally important requirement of specialization. A linguistic description which shows what constructions have in common, but fails to characterize their differences, only does half the job.

Consider again the sentence relative rule $SV * N/SV \equiv SV$ and the example corresponding to it:

THE ATTEMPT SUCCEEDED, WHICH (FACT) SURPRISED US.

Observe that the presence of the comma corresponds to the NON-RESTRICTIVE property of the sentence relative modifier. Observe further that if the operands (nodes) of the J-Rule in question are inverted, the full subjunction rule is obtained which corresponds to the complement inversion of the sentence relative.

$N * SV \equiv N$ THE FACT THAT THE ATTEMPT SUCCEEDED
SURPRISED US.

The complement inversion, however, bears a RESTRICTIVE relation to its antecedent. We are impelled to ask: why is the sentence relative NON-RESTRICTIVE, while the corresponding complement construction is RESTRICTIVE, and how is this contrast to be explained in terms of junction theory?

To answer the first question first, we return to the assertion that subjunctions entail the referential overlap of the joined constituents. There are, to be precise, three obvious ways that the scope of operands can overlap:

1. $X > Y$ Y RESTRICTS X
2. $X = Y$ NEITHER OPERAND RESTRICTS (NON-RESTRICTIVE)
3. $X < Y$ X RESTRICTS Y

All of the restrictive modifiers discussed thus far correspond to the first situation. Therefore, in order for the notation to be explicit, we define the specialized symbol "-*" to use for such junctions.

Non-restriction corresponds to the second situation--both operands have exactly the same scope of reference. As to why the

sentence relative is non-restrictive, while its complement inversion is not, we merely note that an SV is inherently an individual, as opposed to a set, and therefore is not in principle restrictable. Since WHICH refers precisely to the antecedent SV, the scope of the two operands is equal. We therefore introduce the specialized junction "=" to join mutually non-restrictive operands. When the operands are inverted, however, an operand moves into primary position which is restrictable (FACT), and the SV, being a fact, does restrict the scope of its head. We predict, then, that the successful inversion of other restrictive complement constructions will yield other non-restrictive sentence relatives:

I PUT ON MY COAT BECAUSE IT WAS COLD. (ADV * SV ≠ ADV)
IT WAS COLD, SO I PUT MY COAT ON. (SV * ADV/PA ≠ SV)

The third situation ($X < Y$) corresponds to a situation where the primary operand is restricting a secondary operand. FIVE BOYS corresponds to this description. We observe also that there exists a certain class of interjunctions which appear to find an explanation in this pattern. In the literature of JG they are referred to as FRAME II MODIFIERS. We have in mind expressions such as:

ONLY JOHN
AT LEAST MY COUSIN
JEREMY ALSO
BOSTON INSTEAD OF CHICAGO

Notice that each of the noun-modifying expressions in question has a non-restrictable head. Notice also that these expressions are not non-restrictive attributes (WHITE SNOW/SNOW, WHICH IS WHITE but not ONLY JOHN/*JOHN, WHO IS ONLY). For the $X < Y$ situation we introduce the specialized junction "-*" and use it for Frame II modifiers. The term "Frame II" reflects the semantic fact that such interjunctions relate a constituent whose reference is already resolved to a second frame of reference involving other relevant entities.

The specialized subjunctions already discussed in conjunction with the referent were also introduced into the notational system of JG as a consequence of specialization. Thus, by using deductive generalization in conjunction with subsequent specialization of junctions in order to account for the differences as well as the similarities in related patterns, we attempt to arrive at an understanding of pragmatic structures in all their varieties.

Having provided an overview of the pragmatic data system, we now turn to its linkage with the outward forms of language.

IX. THE PRAGMATIC/SIGNATIVE INTERFACE

The form and content of pragmatic data, as described above, serves as the basis for stimulating signative code in other data systems. Since most of our work to date has dealt with pragmatic data and its interface with articulatory data and/or orthographic strings, I shall limit my comments in this section of the paper to a brief description of the methods we have employed to simulate the required coding interface.

Since the data in pragmatic graphs is not chronologically ordered, it is necessary to determine the order in which the various constituents of the graph will be coded. We refer to the rules which accomplish this as Lexical Ordering Rules (LO-Rules). It is also necessary to determine which items in the graph will be "understood" implicitly rather than coded explicitly. Lexical Hiatus Rules (LH-Rules) are used for this purpose. Those items which are to be coded must stimulate the introduction of specific lexical units in the orthographic or articulatory coding space. This is accomplished by Lexical Matching Rules (LM-Rules). Patterns of concord, inflection, conjugation, and affixation in the lexical data must also be provided. This is done by means of Lexical Agreement Rules (LA-Rules) which accomplish the required refinement of the lexical data by referring to the pragmatic graph. Finally, if the signative data is orthographic, Graphological Rules (G-Rules) operate to punctuate the output string. If the signative data is articulatory, Phrasing Rules (PH-Rules) are used to assemble the individual mini-graphs present in the coding space into the macro-graphs which are executed as phrases in the articulation stream.

Although some work has been devoted to the integration of the various coding rules into what may be termed coding grammars, these rules have been implemented algorithmically on computers. We find that it is possible, given the form and content of pragmatic data as described above, to encode from that base well-formed sentences in such diverse languages as English, Japanese, Spanish, Chinese, German, Portuguese, and French. It is likewise possible, given well-formed sentences in some language, to construct decoding algorithms which recover the appropriate pragmatic graphs.

Let us now consider briefly some past and on-going efforts to bridge the gap between theory and application with JG.

X. INTERACTIVE TRANSLATION SYSTEM

Junction Grammar serves as the linguistic base for the well-known Brigham Young University computer translation project.^{<6>} This project differs from others in that we take an interactive rather than automatic approach to machine translation; hence, the name Interactive Translation System (ITS). Because of the general descriptive power of pragmatic graphs and their applicability across languages, multiple translations can be generated from this base. ITS, therefore, has a one-to-many configuration; that is, one source text (English) is analyzed, reduced to pragmatic data, and then translated into Spanish, French, German, Portuguese, and Chinese. Figure 30 depicts the structure of the ITS System.

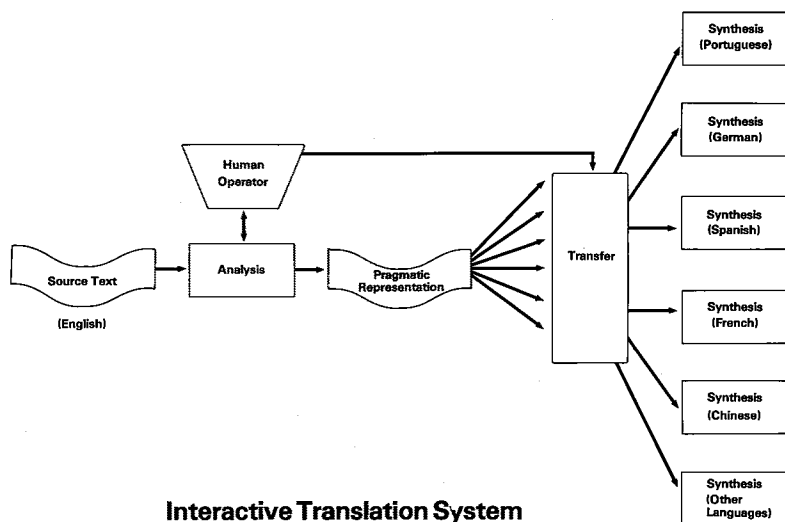


Figure 30

Source materials enter the analysis phase, where a graph is built for each sentence. Because of the inherently ambiguous nature of language, the machine is unable to build that representation without human assistance.

^{<6>} For an outline description of this project see Alan K. Melby, "ITS - An Interactive Translation System". BYU Linguistics Symposium Proceedings, 1979.

Ambiguities are dealt with at two levels using human interaction. At the word sense level, the computer asks the human operator to resolve ambiguities which are present in the text being processed. For example, the word "temple" could refer to human anatomy or to a structure devoted to religious worship. The human determines from context which meaning was intended and responds to the computer so that automatic processing may continue. Interaction at the word level is also required in the transfer phase of processing where specific adjustments are made for target languages. A word such as "rock" in English may have more than one corresponding translation in, say, French, depending on context. In a case such as this, the machine presents the various options for the operator's selection. Intervention at this point on word sense problems in the transfer phase has proven to be more economical than leaving the question to be resolved by post-editing in the output of five languages. In the analysis phase, interaction is also needed to resolve the abundance of structural ambiguities found in English.

Consider this sentence: THE BOY THREW THE BALL ON THE TABLE. Potential meanings of this sentence could be:

- (a) THE BOY THREW THE BALL ONTO THE TABLE.
- (b) THE BOY THREW THE BALL WHICH WAS RESTING ON THE TABLE.
- (c) THE BOY WAS ON THE TABLE WHEN HE THREW THE BALL.

Since these ambiguities are not directly translatable (for example, in German, meaning (a) would require the accusative case, and meanings (b) and (c) would require dative case), the operator must indicate to the machine which meaning was intended so that the unambiguous JG representation of the intended structure can be built. A pragmatic graph is required for each of the potential meanings of the ambiguous sentence. Once the correct graph has been built, accurate, high-quality output can be produced.

In the transfer phase, structural adjustments are made automatically to accommodate target language requirements. For example, the English sentence I LACK CONFIDENCE would require a structural adjustment in which the object of the English sentence becomes the subject of the target sentence (CONFIDENCE IS LACKING IN ME) to produce acceptable Portuguese output.

The Interactive Translation System enters its production evaluation phase this fall and is scheduled to initiate full production work in January of 1980. Initial indications are very encouraging, and the system promises to significantly reduce the time required to produce a finished translation.

XI. PEDAGOGICAL APPLICATIONS OF JUNCTION GRAMMAR

Because of the descriptive power of Junction Grammar, several studies have been made and others are underway to test its pedagogical viability in the areas of first and second language instruction.

In studies conducted at the Language Training Center, Provo, Utah, a simplified Junction Grammar representation was used to teach structural generalities about Spanish and Portuguese to second language learners. In these studies, significant gains were noted in the following areas: number of subordinations per sentence generated in a creative setting; reduction of structural errors; and size of structures generated.<7>

Informal studies were conducted in ESL programs in Brazil by the International Linguistic Foundation with similar results. Of particular note was the increased range of structures readily generated by participants in this program, including such non-textbook but idiomatic sentences as IT'S THE MAN WHO COMES TO TEACH US ENGLISH EVERY OTHER DAYS'S NECKTIE.

Pilot studies have been conducted in primary language instruction in Freshman English classes at Brigham Young University, as well as eighth- and ninth-grade junior high school classes in two separate school districts, using simplified Junction Grammar workbooks to present a variety of linguistic notions. Gains have been consistently noted in these studies in the areas of recognition of ambiguity, recognition of parts of speech, ability to specify modificational relationships, and increased use of subordinations in writing. Publication of the results of these studies is forthcoming.

XII. COMPUTERIZED VOICE SYNTHESIS

In the course of our work with pragmatic graphs, significant correlations were noted between their structure and acoustic parameters present in the spoken utterances corresponding to them. Studies were therefore undertaken to determine the feasibility of coding up articulatory graphs from the pragmatic graphs, and then using the articulatory data thus obtained for computerized voice synthesis.<8>

<7> Olsen & Tuttle, "The Effect of a Graphic Representation on the Acquisition of Sentence Generation Skills in a Foreign Language." Presented at 1978 AERA Annual Meeting in Toronto, Canada. Also see: Olsen & Tuttle, "The Effect of a Graphic and Explicit Representation on the Acquisition of Sentence Generation Skills in a Foreign Language", presented at 1974 AECT Convention.

<8> Alan K. Melby, et al., "Pitch Contour Generation in Speech

Essentially, semantic contrasts in the pragmatic data were recoded as distinctions in the prosodic super-structure of articulation graphs. The latter were then used to generate pitch contours dynamically. The pitch contour system produced output for each reading of a set of ambiguous sentences. Sentences were then evaluated in a formal test environment for naturalness and intelligibility of intonation. Results of the testing showed that generated pitch contours were judged nearly as natural as human-produced contours. The generated contours were intelligible in the sense of causing the listener to perceive the intended reading of the sentence.

XIII. WINDING IT ALL UP

I stated initially that the purpose of this paper was to introduce JG and relate it to other more familiar approaches to linguistics. Although I have made no explicit mention of Transformational Grammar, Systemic Functional Grammar, Stratificational Grammar, Tagmemics, or any other specific approach, I have attempted to relate these as well as others to JG by stating forthrightly my position on crucial issues which relate to them as well as to JG: my remarks regarding the need to approach linguistic science from a broad perspective, rather than some narrow artificial point of view; my remarks regarding the need to recognize distinct data types (strata, if you prefer), and a rationale for identifying them; my remarks regarding the multi-system property of semantics; my remarks regarding mixed data types, linguisticorns, and the world of mythological linguistics; my remarks with regard to the presence illusion and the need to represent relational senses at a non-lexical, pragmo-semantic level; my remarks with regard to notational rationale--the significance of category and functional labels--the necessity of specifying junctional values; my remarks regarding the need to formalize our intuitive knowledge about conjunction, adjunction, and subjunction; the demonstration of how one does linguistics by means of the schemata which can be stated in terms of these fundamental notions of structure; the technique of balancing generalization with specialization; and finally the identification of JG activities in machine translation, speech synthesis, and pedagogy which relate to real-world, real-people linguistic applications . . .

Certainly this should suffice to initiate a productive and mutually beneficial dialogue between us.

Synthesis: A Junction Grammar Approach." Ph. D. Dissertation published as AJCL microfiche #60, Spring 1976.

A COMPARATIVE LOOK AT JUNCTION GRAMMAR

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Introduction

It seems that syntax has moved from tyranny to anarchy. In slightly over a decade we have seen the transition from the boldness of writing about "THE" theory of syntax to the present bewildering variety of theories. It is hoped that the present paper will contribute in a small way to mutual understanding.

Three Models

Getting straight to the point, let us consider three approaches to syntax and their principal authors:

1. JG: Junction Grammar (Eldon Lytle)
2. FG: Functional Grammar (Simon Dik)
3. CORG: Corepresentational Grammar (Michael Kac)

Rather than assume that the audience is familiar with these three theories and present only general conclusions which will then mean little, I will begin by diagramming two sentences according to all three theories. Then I will argue that the three approaches have the same point of view on five basic issues. Finally, I will suggest some areas where further research is needed. Needless to say, I hope to represent the three theories fairly. As indicated by the title of this paper, I am oriented to Junction Grammar, but I will attempt to simulate an objective observer.

PART I - TWO SENTENCES REPRESENTED IN THREE APPROACHES

Sentence One - A Simple Passive

The first sentence to diagram is a simple passive, "The duckling was killed by the farmer." The diagrams according to JG, FG and CORG are shown in Figure 1. I will briefly explain what each diagram describes.

PASSIVE: The duckling was killed by the farmer.

FG: Past "kill" V Passive
(dlxi: "farmer" N (xi)) Agent
(dlxj: "duckling" N (xj)) Goal Subject

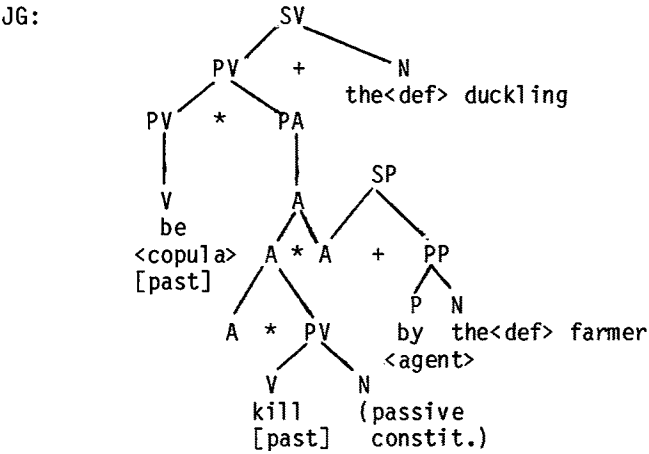
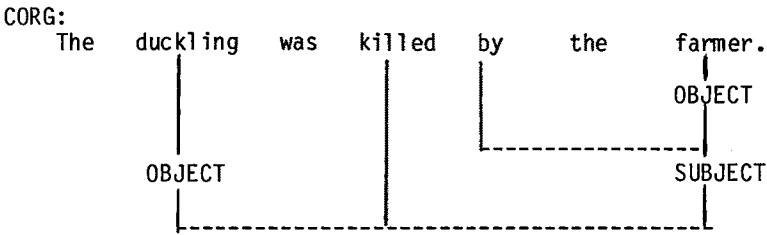


Figure 1

The Functional Grammar diagram claims that underlying the sentence is a passive predication based on the verb "kill". The first argument is the definite-singular (d1) noun "farmer", which has the semantic function "agent". The second argument is "duckling", which has the semantic function goal and the syntactic function subject.

The Corepresentational Grammar diagram indicates that the sentence has two units of interest: the verb "kill" and its arguments, and the preposition "by" and its argument. Note that "duckling" is marked as the logical object of "kill" in CORG and the syntactic subject of "kill" in FG. Also, "farmer" is marked as the logical subject of "kill" in CORG, while in FG it is marked as the agent but receives no syntactic function. In CORG, the surface function of a noun phrase is implied by its logical function and its "markedness" (see Kac, 1978, p.45).

The Junction Grammar diagram claims that the sentence is a passive predication consisting of the syntactic subject "the duckling", the complex verb "was killed", and the prepositional phrase "by the farmer". The fact that the syntactic subject is the logical object of "kill" is implied by the "passive constituent" in the object slot of "kill". The fact that "farmer" is the logical subject of "kill" is implied by the "agent" sense of "by".

The three diagrams clearly differ in how they treat the functions of noun phrases, but they also differ in how close the representations are to the surface. The FG diagram requires expression rules to form the surface sentence. For example, the "passive" mark on the verb "kill" stimulates an expression rule to add the copula "be". And the "agent" mark on "farmer" without a syntactic function calls for the preposition "by" to be added. According to FG, rules can add to the underlying predication and inflect and order its elements, but they do not change its structure. The JG diagram is closer to the surface sentence but still requires some lexical rules to inflect and order the elements of the sentence. The CORG diagram uses the surface sentence directly and therefore requires no rules to derive it.

There are even more differences among the theories suggested by the diagrams of one sentence. (1) FG and JG share a concern for the pragmatic status of a noun phrase (definite/indefinite). In fact, they both mark this status on a noun phrase even if there is no explicit article. (2) Only JG makes an explicit claim about the internal structure of the past participle "killed". JG shows "killed" as a predicate which is adjectivalized so that it can function syntactically as the predicate adjective of "be". (3) The symbols "+" and "*" between sister nodes in the JG diagram are the junctions which gave

Junction Grammar its name. The plus sign stands for adjunction and the asterisk for subjunction. There are many specialized junctions not shown in the sample diagram. They indicate syntactic-semantic functions of the nodes they join.

Sentence Two - A Relative Clause

The next sentence contains a simple relative clause, "The farmer who killed the duckling bought an axe". The diagrams are shown in Figure 2.

The reason for considering the second sentence is, of course, to compare the three theories as to their treatment of relative clauses. There is general agreement among the three diagrams that there are two predications in the sample sentence: "The farmer bought an axe" and "who (the farmer) killed the duckling".

However, an interesting issue remains. JG has over the years stressed the importance of explicitly showing the degree of referential overlap between a relative or complement construction and its head. Thus we see in the sample JG diagram that the two predications overlap only at the relative pronoun "who". This intersecting junction is called interjunction and creates a graph which is not a standard n-ary tree. Now let us contrast this sentence with the complement construction in the phrase "the fact that he killed the duckling". In JG, this phrase would receive a diagram involving not an interjunction but rather a full junction with the entire clause "that he killed the duckling" subordinate to the head phrase "the fact", much like a standard TG diagram for the phrase. The difference between the interjunction and the full subjunction can be felt when one remarks that in "the fact that he killed the duckling" the complement clause "that he killed the duckling" is the fact, but in "the farmer who killed the duckling" the relative clause "who killed the duckling" is not the farmer. Of the elements of the relative clause, only "who" can be thought of as referring to the same thing as the head.

At first glance, it may seem insignificant to explicitly represent degree of referential overlap. However, the decision to do so has profoundly shaped the evolution of Junction Grammar.

PART II - SIMILARITIES IN THE APPROACHES

Unity in Opposition

After this extremely brief comparison, a few things are apparent. In spite of differences, the three theories have enough in common to allow for interesting discussion.

Respect for the Surface String

All three of the theories have a healthy respect for the surface strings of natural language. In order to avoid too great a distance between underlying structures and surface strings, FG disallows all structure-changing transformations and all filters. JG maintains as a fundamental assumption that surface structures are generally a direct reflection of underlying structure. CORG makes the following strong statement:

It appears ... that surface structure must be given a considerably more prominent position than it has occupied in transformationally based investigations.

It comes as no surprise that such phenomena as non-normal form in complement constructions [John was believed to be ill] are taken as indicative of 'degeneracy' in output structures; this in turn reinforces the lack of attention paid to such structures, while favoring increased reliance on idealized hypothetical entities, which itself leads in a never-ending regression even further away from concern with the one set of objects of natural languages that provide the very "raison d'être" of syntactic theory: the sentences of languages and what can be determined empirically about their form and content. (Kac,1978,pp.102-103)

Rejection of T-rules

As indicated above, FG rejects structure-changing T-rules. The same is true of CORG and JG. All three theories part company with TG at essentially the same point near the beginning of Syntactic Structures. When P-rules were supposedly shown to be inadequate to describe natural language, Chomsky turned to a transformational component to make up for the weakness of the base component. However, JG, FG, and CORG all reacted by searching for a more powerful base component. For JG, Lytle writes:

JG assumes that failure to identify the constituent structure of a sentence does not mean the sentence is transformationally derived, but, rather, that the

analyst is ignorant of the relations present and consequently, that what is needed is not a transformational component, but improved understanding of the set of grammatical relations utilized by natural languages. (Lytle,1977,p.10)

Syntax and Semantics

In addition to rejecting T-rules and requiring that underlying representations be not too far from the surface, all three theories have rejected the syntax/semantics dichotomy, which is basic to standard TG. CORG claims that although autonomous syntax has been the party line, "few transformationalists have remained consistently true to formalist principles; much of the interest in TG ... was due to its usefulness as a formal tool for semantic analyses." (Kac,1978,p.163). JG holds that "any attempt to draw a dichotomy between syntax and semantics is an exercise in futility" (Lytle,1977,p.27). FG assumes that syntax is subservient to semantics, not autonomous from it (Dik,1978,p.5).

Competence and Performance

Another dichotomy rejected by the three theories is the supposed one between competence and performance. CORG argues that TG is not even a theory of competence but of linguistic structure (Kac,1978,p.154). FG holds that "the study of the language system must from the very start take place within the framework of the system of language use" (Dik,1978,p.5). JG asserts: "speech, being a live process, rather than an immaterial abstraction of outer space, can best be analyzed for what it entails precisely in terms of how it is used" (Lytle,1977,p.42).

Basic Point of View

The preceding discussion of the agreement among the three theories on some basic issues suggests to me that the agreement is not coincidental, but stems from a similarity in basic point of view about how language should be studied by linguists. All three theories begin with language as a tool for human communication rather than as a formal object to be studied in a vacuum. The effect is that instead of starting with mathematical notations and looking for some use for them in generating a set of strings of words, the sentences of natural language and how humans use them are viewed with more respect. T-rules are rejected because they are counter-intuitive and syntax rides inside semantics, helping where it can but not being considered

an end in itself. Whereas TG has assumed autonomous syntax to be a stepping stone to an understanding of language use, this particular assumption has turned out to be a stumbling block.

PART III - AREAS FOR FURTHER RESEARCH

JG calls for the study of language as a "live process". CORG proposes a "notionalist" point of view rather than a "formalist" approach (Kac,1978,pp.159-160). And FG argues for a "functional paradigm" rather than a "formal paradigm" (Dik,1978,p.1). I feel strongly that this move to a "living-notional-functional" approach is crucial to the future of linguistics and will eventually provide the basis for a new paradigm in which many linguists can productively cooperate. However, in spite of the significant unity among the three theories in question (and many other current approaches, of course), there are still some differences and gaps which will inhibit cooperation until they are resolved. Some of these were mentioned in the discussion of the sentence diagrams. A few more deserve attention now.

Strata

An unresolved issue with extensive implications is the question of strata. How many strata are there? What is the nature of the data in each stratum? What is the nature of the coding rules that relate the various strata? I find it hard to imagine any theory which would deny the existence of a phonological stratum to deal with questions of articulation and audition. Also, a lexical-morphological stratum is needed to deal with questions of word formation. There may be some question about the abstractness of underlying forms or the proper way to represent intonation. But more basic disagreement appears in the area of semantic representations. The diagrams of FG are more abstract than those of JG. In JG, if there is a prepositional phrase in the surface string, there will be one in the JG representation (called a J-tree). In FG, however, the preposition may be created by an expression rule. But FG and JG are both more abstract than CORG in that they do not require the elements of the diagram to be linearized into surface word order. The primary motivation for abstractness, I believe, is to emphasize similarities between constructions that have something in common. But one cannot go too far without an unfortunate loss of power to describe differences as well. In JG, there is a box labelled "basic semantic data" (Lytle,1977,p.12) which has hardly been opened. For one thing, it represents the need to account for paraphrase much more adequately than can be done with the current diagrams of JG or FG. It does not mean that J-trees will eventually be replaced. Personally, I see the need for at least three semantic representations with coding rules between them:

one like a J-tree (rather close to surface strings), one very abstract to account for paraphrase and inference, and one in between which would look somewhat like FG diagrams and would be used in encoding and decoding J-trees.

Areas of Emphasis

There is something to the analogy between linguists studying language and blind men studying an elephant. In each case, individuals come to very different conclusions about the same thing. All three theories recognize the need to account for both the speaker and the hearer in the communication process. FG has formalized mainly the production process, while CORG has focused on the recognition process. JG has had to deal with both in the problem of translation but has not sufficiently formalized either and has instead emphasized their points in common - the J-tree. This difference in emphasis has resulted in different theories.

Another difference among the three theories concerns which grammatical constructions are emphasized. FG has invested more energy than JG in exploring semantic functions associated with noun phrases, such as agent, goal, instrumental, etc. JG has invested more energy than FG in exploring the nature of derivations and modifier constructions, especially participles, and relative modifiers in addition to standard relative clauses (e.g. adverbial modifiers, comparatives, sentence relatives, "subordinating conjunctions", etc.). I suspect and hope that the future will bring together several theories that share some basic assumptions to examine each other's strong points and forge a new, more powerful, linguistic approach to human communication.

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PROCESSES IN BILINGUALISM
AND LANGUAGE LEARNING

ACQUISITION OF FRENCH PRONOMINAL VERBS BY GROUPS OF YOUNG MONOLINGUAL AND BILINGUAL CANADIAN STUDENTS*

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0. Introduction

To our knowledge there has not been any extensive study of the acquisition of the morphology of French pronominal verbs (e.g., s'en aller, se laver, se coucher, etc.). Among the few studies touching on this topic, Grégoire (1968: 358-359) noted a systematic tendency on the part of his two young male subjects to omit the reflexive pronoun when attempting to use pronominal verbs in the early stages of acquisition (e.g., *Je lève instead of Je me lève 'I am getting up'). The tendency persisted in lessening degree until age four approximately. In one of our own studies (Canale, Mougeon and Beniak 1978), we found a similar tendency to simplify the morphology of pronominal verbs in the spoken French of older subjects (i.e., grade two Franco-Ontarian students). The English-dominant students in our sample were also shown to depronominatize much more frequently than their French-dominant counterparts. In contrast, a comparison group of grade two Quebec monolingual students revealed only a very weak tendency to delete the reflexive pronouns accompanying pronominal verbs. Owing to the preliminary nature of our study we did not examine reflexive pronoun deletion as a function of the individual pronominal verbs. However, in a study devoted to the analogical leveling of the auxiliary être in Ontario French (Canale, Mougeon and Bélanger 1977), we found that a verb-by-verb approach revealed interesting differences.

In light of the above, it seemed worthwhile to us to undertake a more in-depth study of the acquisition of the reflexive pronoun in spoken Ontario French which would consider individual pronominal verbs as well as the age and language dominance of the subjects.¹

1. Methodology

The data for the present study were gathered via a series of tape-recorded interviews conducted with grades two and five bilingual (French-English) students residing in six Ontario communities (i.e., Cornwall, North Bay, Pembroke, Sudbury, Welland and Windsor). The interview questions had been designed to elicit a natural speech style and dealt with topics of general interest. In addition, questions were asked on each student's parents' occupations and on each student's use of French and English with parents and siblings in the home. The information gathered via these questions was used to determine each student's socioeconomic affili-

ation (i.e., working, middle or professional class) and dominant language of communication in the home (i.e., French, English or French = English, that is, equal or roughly equal usage of both languages). Students at each grade level and in each locality were selected so as to assure a fairly equal representation of males and females. The number of interviews carried out per grade level in each locality was approximately 10. The interviews were of an average duration of 30 minutes.

Before presenting our results, we would like to mention several limitations of our data. Our data were not numerous enough to allow us to examine the possible effect of social class on the acquisition of the reflexive pronouns by our subjects for each verb under study.² Furthermore, neither were our data numerous enough to permit a complete study of the possible influence of language dominance. We thus decided to regroup the occurrences of pronominal verbs used by the English-dominant and French = English students. This conflation appeared justified on the grounds that general percentages of deletion of the reflexive pronouns (i.e., calculated on the basis of all the tokens of each pronominal verb under study) were found to be similar for the English-dominant and French = English groups (i.e., 45.2% and 34.7% respectively),³ while that of the French-dominant group was only 12.6%. By regrouping our data in these ways we were able to arrive at a final set of four student groups (i.e., grades 2 and 5 French-dominant and grades 2 and 5 English-dominant students) who together had used each of 15 pronominal verbs on at least 10 occasions. Further, in order to study the influence of age and language dominance on the omission or use of the reflexive pronoun, the larger set of 15 verbs was reduced to 10 which had been used often enough by each student group to permit the calculation of meaningful percentages of depronominization. Finally, possible acquisition differences due to sex were not examined.

2. Results

Bearing in mind these data manipulations, we present below our findings in Table 1 and Figure 1.⁴

Table 1
Rank-ordered depronominization rates of
15 French pronominal verbs

s'appeler	(0%)	s'habiller	(20%)	se coucher	(38%)
s'en venir	(0%)	se réveiller	(23%)	se laver (-D.O.)	(38%)
s'en aller	(1%)	se baigner	(24%)	se cacher	(41%)
se souvenir	(14%)	s'asseoir	(27%)	se laver (+D.O.)	(73%)
se rappeler	(14%)	se lever	(37%)	se brosser (+D.O.)	(79%)

Figure 1

Percentages of deletion of the reflexive pronoun with 10 French pronominal verbs by grades 2 and 5 bilingual Franco-Ontarian students

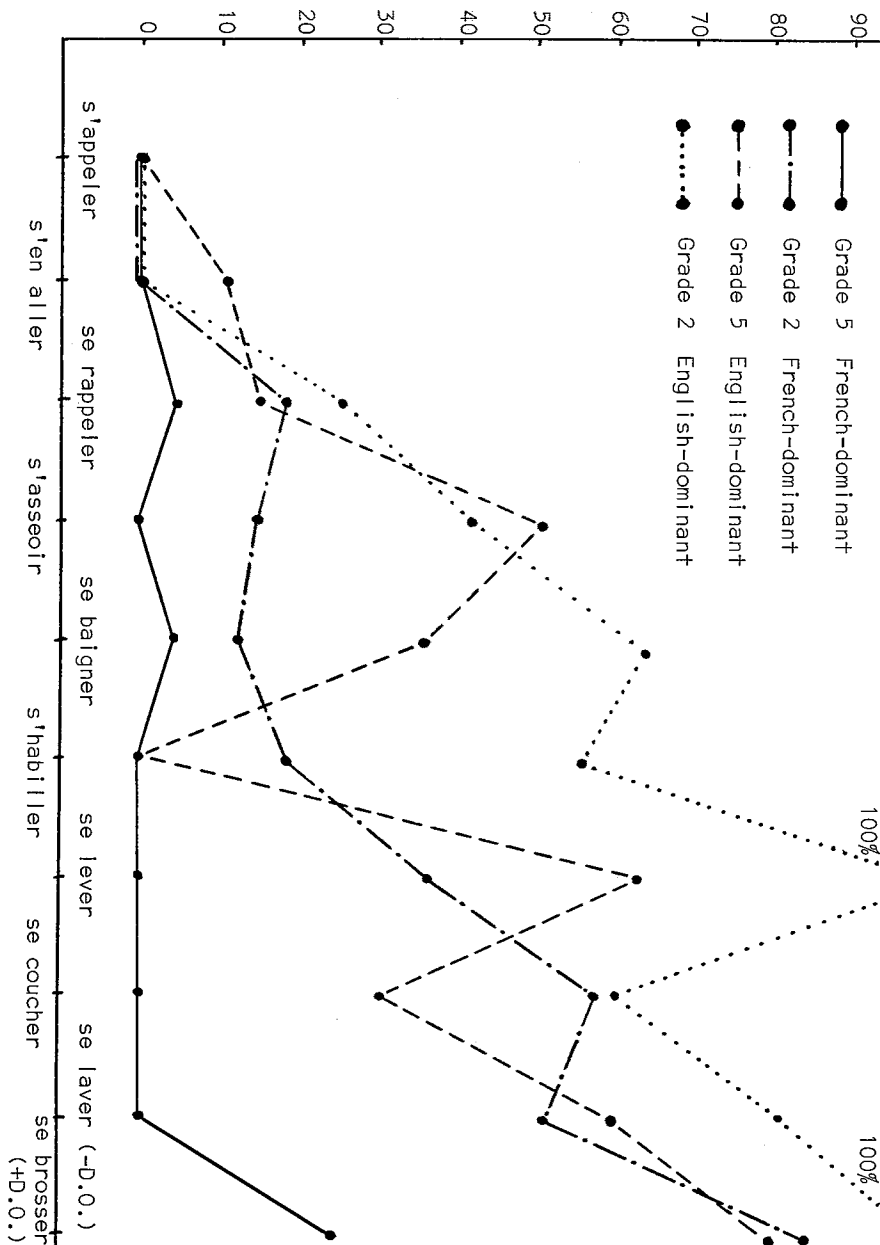


Table 1 shows a considerable amount of variation in rate of deletion of the reflexive pronoun as a function of the individual verbs under study. The only two verbs which were never depronominized by our subjects are s'appeler and s'en venir. At the opposite end of the acquisition scale, the pronominal verbs which were most often used without a reflexive pronoun are se laver (+D.O.) and se brosser (+D.O.).

Figure 1 reveals that the grade 2 French-dominant students have mastered two pronominal verbs: s'appeler and s'en aller. By the fifth grade, however, the French-dominant students have acquired all but one of the 10 pronominal verbs: se brosser (+D.O.).⁵ In contrast, the English-dominant students experience persistent acquisition difficulties. Indeed, it can be seen that the number of pronominal verbs that are acquired does not increase during the schooling of these students. In grade 2 the English-dominant students have mastered s'appeler and s'en aller, and in grade 5 still only s'appeler and s'habiller are acquired. It thus appears that the Franco-Ontarian students who are English-dominant lag behind their French-dominant counterparts in mastering the use of reflexive pronouns with pronominal verbs.

Before beginning our discussion of the above findings, it is instructive to point out that although omission of the reflexive pronoun was the most frequent feature of nonstandard usage associated with use of the pronominal verbs, it is not the only one we observed. We noted several instances where the improper reflexive pronoun was supplied. In each case the improper reflexive pronoun was the third person singular se or s' (e.g., *J'ai s'en allé à l'école 'I went to school'; *Je se lève 'I am getting up'). Although their number was very limited, the existence of such forms nonetheless suggests that there may be a stage in the acquisition of French pronominal verbs where the reflexive pronoun se is used as an invariable prefix (in support of this, cf. Grégoire 1968: 136). Further in this connection, to the extent that children acquiring French as a first language tend to place object pronouns in postverbal instead of preverbal position (cf. Grégoire 1968: 104-107), one might have expected a similar tendency on the part of our subjects. However, we found no evidence in our data of such misplacements as *Je réveille me/moi 'I am waking me up' or *Il lave se/lui 'He is washing him', etc. It may be that such a strategy is resorted to only by younger learners.

3. Discussion of Table 1 findings

The morphology of French pronominal verbs is irregular among other ways in that -- with the exception of impersonal verbs (e.g., Il se peut que je vienne) and passive pronominal verbs (e.g., Ce vin se boit bien), both of which are infrequent -- no other verbs in French require an object personal pronoun. Furthermore, the study of Grégoire (1968) contains ample evidence suggesting that the acquisition of the morphology of nonpronominal verbs precedes that

of pronominal verbs. Thus we can hypothesize that the tendency of our subjects as well as Grégoire's to omit the reflexive pronoun represents an attempt to level the morphological distinction between pronominal verbs and simple active verbs. It is interesting to note that the pronominal voice, formerly widespread in Old French, has been considerably reduced in Modern French (Brunot and Bruneau 1969: 275). Thus it would seem that learners of Modern French tend to operate the same morphological simplification that has characterized the evolution of the French language (cf. Grégoire 1968: 136).

However, the above account does not explain why this simplification process seems to affect the 15 pronominal verbs in Table 1 in varying proportions. Below we would like to discuss several linguistic factors which we think may account for the observed variation. These factors are the following: (a) the existence of nonpronominal lexical counterparts of the pronominal verbs; (b) the semantic equivalence of these counterparts with their corresponding pronominal forms; (c) the frequency of the semantically equivalent nonpronominal counterparts; (d) the preservation of reflexiveness; (e) the frequency of the pronominal verbs.

3.1 Nonpronominal counterparts

It seems reasonable to assume that the existence of a nonpronominal counterpart of a given pronominal verb may reinforce the tendency shown by our subjects to delete the reflexive pronoun. The reasoning is that the learner may be led to omit the reflexive pronoun by analogy with the reflexiveless morphology of the previously acquired nonpronominal homophone (cf. above 3). Returning to our data, all of the pronominal verbs listed in Table 1, with the exceptions of s'en venir, s'en aller and se souvenir,⁶ have a nonpronominal homophone. Thus one may make the claim that the tendency to depronominize s'en venir, s'en aller and se souvenir in comparison with the other pronominal verbs should be weaker. An examination of Table 1 reveals very low depronominization rates for s'en venir (0%) and s'en aller (1%). However, se souvenir displays a depronominization rate of 14%. Hence one might wonder why s'en venir, s'en aller and se souvenir are not all depronominized to the same degree. Furthermore, factor (a) alone is not sufficient to account for the absence of depronominization of s'appeler nor the variation in the depronominization rates displayed by the other verbs in our sample.

3.2 Semantic equivalence

It seems logical to suppose that the analogical reduction of the morphology of a pronominal verb hypothesized above will be greater if its nonpronominal counterpart is semantically equivalent. The "true pronominals" s'en venir, s'en aller and se souvenir are excluded in the discussion below.

Of the other verbs in our sample of 15, se rappeler is the only one which does not have a semantically equivalent nonpronominal counterpart (e.g., se rappeler 'to remember' but rappeler 'to remind, to call again').

Examples of semantically equivalent nonpronominal counterparts are: s'habiller 'to dress (oneself)' and habiller 'to dress somebody'; se coucher 'to go to bed' and coucher 'to put someone to bed', etc. Assuming the correctness of factor (b), se rappeler should be de-pronominalized less often than the other verbs in our sample which possess a nonpronominal counterpart. Table 1 shows that this is the case, with the exception once again of s'appeler. However, factor (b), in addition to failing to account for the lower depronominization rate of s'appeler with respect to se rappeler, does not allow us to explain the variation in the depronominization rates displayed by the verbs in our sample which do possess a semantically equivalent nonpronominal counterpart, i.e., s'habiller (20%) → se brosser (+D.O.) (79%).

3.3 Frequency of the semantically equivalent nonpronominal counterparts

It seems reasonable to assume that the more frequent a given semantically equivalent nonpronominal counterpart is in the spoken language of our subjects, the more likely it is to act as a reinforcing agent in the analogical leveling process under investigation.

We examined the frequency of the semantically equivalent nonpronominal counterparts in the spoken French of a subpart of our corpus for which we had a computer concordance. This examination revealed the following frequencies: appeler (0), habiller (0), baigner (0), asseoir (0), se laver (-D.O.) (0), réveiller (2), lever (2), brosser (+D.O.) (2), cacher (3), laver (+D.O.) (9) and coucher (12). According to these results then, one would hypothesize lower depronominization rates for the pronominal verbs which correspond to the first five verbs of our frequency list. Table 1 reveals that two verbs do not conform to this prediction: se réveiller and se laver (-D.O.). The former shows a significantly lower depronominization rate than the other verbs having more frequent semantically equivalent nonpronominal counterparts. As to se laver (-D.O.), its higher than expected depronominization rate (38%) with respect to the other pronominal verbs which have nonoccurring semantically equivalent nonpronominal counterparts is in all probability due to the analogical effect of the rather frequent laver (+D.O.) constructions. However, we have yet to explain why s'appeler has a nil rate of depronominization and why se laver (+D.O.) and se brosser (+D.O.) have very high rates.

3.4 Preservation of reflexiveness

The pronominal verbs in our sample fall into one of two categories.

On the one hand there are the "subjective" pronominals (i.e., s'en venir, s'en aller and se souvenir), whose reflexive pronoun has no clear semantic or syntactic function. It is as if the reflexive pronoun were an agglutinated part of these verbs (cf. Grevisse 1975: 597). On the other hand, there are the "reflexive" pronominal verbs (all the other verbs in our sample belong to this category), whose reflexive pronoun has both a well-defined semantic and syntactic function. On the semantic level the reflexive pronoun is coreferential with the subject and serves to indicate that the subject is the recipient of his own action. The reflexive pronoun of such verbs also functions as a direct or indirect object on the syntactic level. Thus the process of depronominization as it applies to the reflexive pronominal verbs results in the loss of the functions just described.

Among the reflexive pronominal verbs in our sample, there are two whose depronominized forms nonetheless preserve reflexiveness: se laver (+D.O.) and se brosser (+D.O.) (e.g., 1a, b and 2a, b).

- (1) a. Je me lave les mains. (pronominal form)
'I am washing myself the hands.'
- b. Je lave mes mains. (depronominized form)
'I am washing my hands'
- (2) a. Je me brosse les dents. (pronominal form)
'I am brushing myself the teeth.'
- b. Je brosse mes dents. (depronominized form)
'I am brushing my teeth.'

As the above examples illustrate, with se laver (+D.O.) and se brosser (+D.O.), speakers may obviate the loss of reflexiveness normally resulting from the process of depronominization by using a possessive adjective before the substantive referring to a body part. This strategy is not available to the learners in the case of the other reflexive pronominal verbs in our sample as these cannot be or were not followed by a complement referring to a part of the subject's body. However the speakers could have used the corresponding tonic form of the reflexive pronoun in post-verbal position (cf. above 2).

In the specific case of s'appeler and se laver (-D.O.), the depronominization process, if applied, results not only in loss of reflexiveness but also in polysemous depronominized forms (e.g., 3a, b and 4a, b).

- (3) a. Je m'appelle Marie. (pronominal form)
'My name is Mary.'
- b. J'appelle Marie. (polysemous depronominized form)
'My name is Mary' or 'I am calling Mary.'

- (4) a. Je me lave. (pronominal form)
'I am washing myself.'
- b. Je lave. (polysemous depronominized form)
'I am washing (myself)' or 'I am washing (something).'

Concerning this, it has been claimed by historical linguists (e.g., Anttila 1972) that one of the major principles of language change is that of 'one meaning, one form', i.e., languages (or language learners) strive to avoid the creation of polysemous linguistic forms. Thus, according to this principle, s'appeler and se laver (-D.O.) should not undergo the process of depronominization. Table 1 reveals a depronominization rate of 0% for s'appeler but 38% for se laver (-D.O.). One possible explanation of this discrepancy arises if one considers the respective frequencies of the conflicting nonpronominal counterparts of s'appeler and se laver (-D.O.). The use of appeler 'call somebody' is very frequent in French (we counted 16 tokens in our computer concordance). However the use of laver (-D.O.) is not (cf. 3.3 above). In view of this, it would seem reasonable to hypothesize that our subjects may not be aware that the depronominization of se laver (-D.O.) results in a polysemous form. If the above analysis is correct, then it would seem necessary to qualify somewhat the principle of language change noted above. A possible reformulation could be: language learners will strive to avoid creating polysemous linguistic forms only to the extent that they are aware of the resulting polysemy. In light of the above, we will consider the depronominized form of se laver (-D.O.) not to be ambiguous in the context of the present study.

In summary, given the above discussion of factor (d), it is perhaps not surprising that (1) se laver (+D.O.) and se brosser (+D.O.) were depronominized significantly more often than the other verbs in our sample and that (2) s'appeler was not depronominized at all. Let us now turn to the discussion of the final linguistic factor.

3.5 Frequency of the pronominal verbs

It has often been observed that analogical leveling tends to affect infrequent items before frequent ones, *ceteris paribus* (cf. Hooper 1976 and Martinet 1969 among others). Thus one may hypothesize that the reflexive pronoun will tend to be omitted more often with infrequent pronominal verbs. The 15 pronominal verbs in our sample occurred with the following frequencies: s'en aller (103), se coucher (69), se baigner (66), se rappeler (57), se lever (38), s'habiller (35), s'asseoir (30), se brosser (+D.O.) (24), s'appeler (21), se souvenir (21), se réveiller (20), se cacher (17), se laver (-D.O.) (16), se laver (+D.O.) (15) and s'en venir (15). On the basis of these results, one would predict a low depronominization rate for s'en aller since it has by far the highest frequency. Table 1 shows that this is in fact the case. Although the much

lower frequency of se souvenir could account for the fact (previously unexplained; cf. 3.1) that it has a higher depronominization rate (14%) than s'en aller (1%), the present factor does not explain why s'en venir, also a true pronominal, has a depronominization rate of 0% despite its low frequency. Rather, the higher depronominization rate of se souvenir in comparison to the two other "true pronominals" s'en venir and s'en aller merits another explanation. Se souvenir has the same meaning as se rappeler (i.e., 'to remember'). Furthermore, these two verbs have identical depronominization rates (i.e., 14%). This is perhaps not a coincidence. We think that the higher than expected depronominization rate of se souvenir may be the result of the influence of the depronominization process as it applies to se rappeler.

3.6 Summary

The factors discussed above have allowed us to account for nearly all of the variation in depronominization rate exhibited by the different verbs under study. The two discrepant cases are se réveiller (cf. above 3.3) and se souvenir, for which we provided a special explanation.

The main points of our discussion so far are summarized in Table 2. The plus sign (+) indicates that a given verb has the linguistic property in question, a minus sign (-) that it does not, NA that the linguistic property in question does not apply, and finally AMB that the depronominized form of a given verb is ambiguous. All the linguistic properties included in Table 2 favor depronominization.

4. Discussion of Figure 1 findings

The discussion below will focus first on the variation in depronominization rate as a function of language dominance, then age.

4.1 Language dominance

It has been shown in a number of studies that in a situation of language contact, bilingual learners who are dominant in the majority language have a greater proclivity to eliminate morphological irregularities characteristic of the minority language than those learners who are dominant in the minority language (cf. among others Dorian 1978; Harley 1979; Canale, Mougeon and Beniak 1978). The slower rate of mastery of the reflexive particle (an irregular feature of the morphology of the French verbal system) by the English-dominant students in the present study is consonant with the above. The tendency to regularize may be attributed to limited use of the minority language (cf. Canale, Mougeon and Beniak 1978). This hypothesis derives further support if we consider complementary findings concerning the rate of acquisition of the reflexive pronoun by two comparison groups of students: grades 2 and 5

Table 2

Summary correlation of the variation in depronominization rate with five linguistic properties of the pronominal verbs

Pronominal verb	% of de-pronominalization	Existence of nonpronominal counterpart	Semantic equivalence of nonpronominal counterpart	Observed occurrences of nonpronominal counterpart	Preservation of reflexiveness	Low frequency of pronominal verb
s'appeler	0%	+	+	-	AMB	+
s'en venir	0%	-	NA	NA	NA	+
s'en aller	1%	-	NA	NA	NA	-
se souvenir	14%	-	NA	NA	NA	+
se rappeler	14%	+	-	NA	-	+
s'habiller	20%	+	+	-	-	+
se réveiller	23%	+	+	+	-	+
se baigner	24%	+	+	-	-	+
s'asseoir	27%	+	+	-	-	+
se lever	37%	+	+	+	-	+
se coucher	38%	+	+	+	-	+
se laver (-D.O.)	38%	+	+	+	-	+
se cacher	41%	+	+	+	-	+
se laver (+D.O.)	73%	+	+	+	+	+
se brosser (+D.O.)	79%	+	+	+	+	+

Montreal Anglophones enrolled in an early French immersion program and grades 2 and 5 monolingual French Quebecers (from Quebec City).⁷ Use of French is chiefly restricted to the school for the immersion students, intermediary for the Franco-Ontarian students and maximum for the Quebec City students. One would thus predict that the rate of acquisition of the reflexive pronoun should be fastest for the French Quebecers, slower for the Franco-Ontarians and slowest for the French immersion students. An examination of the use and omission of the reflexive pronouns in the spoken French of the latter revealed the following deletion percentages: Grade 2: s'appeler (0%), s'habiller (89%), se lever (100%), se laver (-D.O.) (100%) and se brosser (+D.O.) (100%); Grade 5: s'appeler (0%), s'habiller (17%), se coucher (37%), se lever (-D.O.) (64%), se lever (80%) and se brosser (+D.O.) (92%). It can be seen by checking Figure 1 that these percentages are all equal to or greater than those displayed by the Franco-Ontarian students. On the other hand the monolingual French Quebecers (whether in grade 2 or 5) showed a nil percentage of omission of the reflexive pronoun in their speech for the following comparable verbs: s'appeler, s'en aller, se rappeler, se baigner and se coucher. As expected, these zero depronominization rates are all equal to or lower than those exhibited by the Franco-Ontarians.

Furthermore, since the ratio of English- vs. French-dominant bilingual Franco-Ontarians varies from one Franco-Ontarian community to another according to such factors as local demographic strength of the French population and local institutional support for French (cf. Mougéon and Canale 1979), one can expect to find intercommunity differences in the rate of acquisition of the reflexive pronoun. In connection with this, we calculated a general percentage of omission of the reflexive pronoun with the 15 verbs under study as a function of the locality of residence of our Franco-Ontarian subjects. The results revealed intercommunity variation in depronominization rate: Cornwall (5%), Sudbury (16%), Welland (24%), Windsor (29%), Pembroke (41%) and North Bay (42%). They also revealed that the strong minority localities of our sample, Cornwall and Sudbury (with a Francophone population greater than 30%), had the lowest deletion percentages, while the remaining localities (weak minorities with a Francophone population of less than 20%) had the highest deletion rates.

Finally, it is interesting to note that none of the English translation equivalents of the 15 pronominal verbs in our sample require a reflexive pronoun although several may optionally be used with one (e.g., 'I am washing (myself)'). Since all of our Franco-Ontarian subjects are active users of English, it seems reasonable to hypothesize that their slower rate of acquisition of the reflexive pronoun relative to the monolingual French Quebecers is also in part due to negative interference of the morphology of the English counterparts of the French pronominal verbs. One might also hypothesize that negative interference of English has a greater decelerating effect on the rate of mastery of the reflex-

ive particle by our English-dominant subjects than by our French-dominant subjects, given the greater degree of use of English of the former.

4.2 Age

Figure 1 reveals that the French-dominant students make significant progress in acquisition of the reflexive pronoun during their elementary schooling, *se brosser* (+D.O.) being the only verb not yet mastered in grade 5. This suggests that depronominization is of a developmental nature, and that as far as these students are concerned, it manifests itself during the earlier stages of acquisition. In contrast, one can see that the English-dominant students show an overall low level of progress in mastery of the reflexive pronoun. Given the persistence of high depronominization rates for the majority of the pronominal verbs listed in Figure 1 in the spoken French of these students, one might suspect that the depronominized verbs may undergo fossilization. In fact, a preliminary study of the use of pronominal verbs in the spoken French of older (grades 9 and 12) English-dominant Franco-Ontarian students showed a tendency on the part of these students to depronominize several verbs, although to a lesser degree than their elementary counterparts. Further in this connection, one may hypothesize that in situations of prolonged restricted use of French, the process of fossilization may lead to subsequent dialectalization of the depronominized verbs. In this respect, Conwell and Juilland (1963) observed that adult speakers of Louisiana French tend to depronominize some of the verbs we have examined in the present study. One may further predict on the basis of the present study that the first and most likely candidates for fossilization in a situation of low exposure to French (e.g., a contact setting such as in Ontario or Louisiana) will be the pronominal verbs which have been found to be subject to the highest rates of depronominization by speakers.

In conclusion, our discussion of the findings displayed in Figure 1 points to a combined effect on acquisition rate of the reflexive pronoun of (1) variation in the age of the speakers and (2) variation in the level of use of the minority language by the speakers. It would thus appear that studies focussing on variability in the acquisition or use of morphological subsystems (especially ones including irregularities) in a minority language should examine the possible effect of these two parameters on such variability.⁸

Notes

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1. In this paper we shall be using the terms "deletion", "omission" or "depronominalization" to refer simply to the absence of the reflexive pronoun before certain pronominal verbs in the spoken French of our subjects. These terms should not be taken to mean that our subjects are deleting a reflexive pronoun which is present at the deep-structure level nor that they may not be at times overgeneralizing the nonpronominal counterparts to some of the pronominal verbs under study. These remain open questions as far as we are concerned.
2. General percentages of omission of the reflexive pronoun calculated for each social class (irrespective of the pronominal verbs or the age and language dominance of the subjects) were the following: working class (34%), middle class (15%), professional class (19%). These percentages suggest that social class and acquisition rate of the reflexive pronouns are not independent and thus it would be fruitful to explore this matter more fully in a future report.
3. We shall henceforth use the term "English-dominant" to refer to these two groups of students.
4. The notations +D.O. and -D.O. respectively indicate the presence and absence of a substantive direct object following the verb.
5. Following the example of Brown (1973), we shall arbitrarily consider acquisition percentages $\geq 90\%$ (or, conversely in our case, omission percentages $< 10\%$) to be indicative of mastery.
6. The depronominalized forms of s'en aller and se souvenir do not exist as verbs (i.e., *en aller and *souvenir). S'en venir, however, does have a nonpronominal counterpart as in en venir aux coups 'to come to blows', but as it is very specialized and infrequent, it is quite unlikely to be part of our subjects' receptive let alone productive competence. Therefore, we will consider s'en venir to be, to all intents and purposes, a "true pronominal" like s'en aller and se souvenir.
7. Both the immersion and Quebec data were gathered earlier, primarily for comparison purposes in our ongoing research on Ontarian French.
8. Dittmar and his associates (1978) have shown the profitability of such an approach in a study of the acquisition of German by foreign workers.

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NATIVE VS. NON-NATIVE ERRORS AND THE $L_1 = L_2$ HYPOTHESIS

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Some valuable work has been done in the last few years in the area of identifying the ways in which the performance (and, indirectly, the competence) of French immersion pupils differs from that of native speakers. A number of recent studies (Setton, 1974, Spilka, 1976, Bongard, 1976, Harley and Swain, 1978, Hamayan, 1978, Connors, Ménard, and Singh, 1978) have shown important quantitative differences between native speakers and Anglophone immersion pupils in their performance in verb morphology and syntax, pronominalization and pronoun placement, agreement, interrogative structures, negation, relativization, article usage, factitive structures, preposition usage, reflexivization, indirect questions, subjunctives, auxiliaries, and contractions. Such studies will eventually go a long way to dispelling the impression still being left by the less specialized second-language literature that immersion (in itself) makes children into near-perfect bilinguals and that it is an unquestionable success in the teaching of French to Anglophone children in Canada (see, e.g., McLaughlin, 1978).

Most of the data on specific structures come from studies on pupils in early immersion programs in which the major method of data collection was (guided) story telling or retelling, or structured interviews, which have the advantages of being relatively close to spontaneous speech, on the one hand, and able to be directed to elicit (or reveal competence in) some specific structures on the other.

In the case of late immersion pupils, there is another means of gathering large amounts of data on specific structures of the investigator's choice in a way that lends itself to point-for-point comparison with a control group of native speakers. This is the use of written tests of specific structures. Its main disadvantage, of course, is that it tells us nothing directly about the immersion pupil's speaking ability. That it does give us indirect evidence on this all-important topic can be confirmed when we have correlations with direct measures of spoken language skill. The quantitative results of a set of eight experimental morphosyntax tests of specific French structures, composed by the present author, Roger Lazure, and Diane Beauregard, correlated collectively at the .001 or .002 level with the Pimsleur French Proficiency "Speaking" test, when these tests (among others) were administered to a random sample of over 150 pupils in a late immersion program near Montreal. These short exercises dealt, in the following order, with negation,

interrogative structures, verb morphology, pronominalization, pronoun order, factitive structures, relative clauses, and the use of definite and indefinite articles.

Since previous studies have already shown significant quantitative differences between immersion pupils and native-speaker controls, both in more global measures of French performance (see e.g. Spilka, 1976) and in the production of certain specific structures (as we saw above), I propose here to answer a different question: are there kinds of errors produced by immersion pupils which are not produced, under similar conditions, by native speakers? More generally, is there such a thing as an error that only non-native speakers make? The answer to this question would cast light on a still more general and much debated question: are first- and second-language acquisition essentially the same or different processes?

The experimental (immersion) sub-groups whose performance was studied here included 46 Grade Seven students and 55 Grade Nine students from the random sample mentioned above. The Grade Seven students had spent Grade Six in total immersion and were spending Grade Seven in partial immersion. The Grade Nine subjects had spent Grade Six in total immersion, and Grades Seven, Eight, and were spending Grade Nine, in partial immersion. In the latter situation, about 40% of instruction time is in French: three courses out of seven.

The Francophone control groups (from French schools in or near Montreal), which were matched with the immersion groups for socio-economic milieu (middle to upper-middle class), included 26 Grade Seven and 20 Grade Nine pupils. They took the same tests as the immersion group, except that the directions were translated into French. This study will compare the errors made by the immersion pupils in Grades Seven and Nine with those of the Francophone controls in the same grades. Rather than emphasizing quantitative differences between the performance of the immersion and French controls on each test (though these differences were almost always significant, where the comparison of means was applicable), we will ask whether there are, among the errors made, ones that are peculiar to the Anglophone subjects.

A priori, one would expect that highly structured, written tests of specific structures would be one of the contexts in which the performance of immersion students should most closely approximate that of the Francophone controls, since the immersion students have been learning French in a school setting. In fact, the program from which our subjects were drawn includes courses in French as a second language. Lambert and his colleagues (e.g., Lambert and Tucker, 1972) regularly found that their early immersion subjects performed much like Francophones on structured, written measures such as the "Test de Rendement en Français" of

the Montreal Catholic School Board.

There will no doubt be some errors which are artifacts of the task (even though purely orthographic errors will not be considered--any form homophonous with an acceptable native form will be accepted). We would expect errors from this source to affect both groups. Our hypothesis is that, even in this situation, there are errors which non-natives will make and which comparable native speakers will not make under similar conditions. Nor will these non-native errors be limited to clear cases of interference.

The error analysis reported on here deals with four of the morpho-syntax subtests: negation, interrogative structures, verb tense morphology, and relativization.

The sub-test on negation consisted of two parts, the first of which (four items) simply asked for negative answers to short questions (the directions and one example are given in the appendix below). The second part (four items) asked for negative answers to questions in which an indefinite pronoun or adverb had been underlined. The student was asked to supply the "opposite" of this underlined word in his negative answer (directions and one example in appendix).

The sub-test on interrogative structures asked the student to write the direct question corresponding to the indirect question in each of eleven items. Both yes-no and WH-questions were included (directions and one example in appendix).

The sub-test on verb tense morphology presented sentences in the present tense and asked the student to supply the 'passé composé,' the imperfect, and the future of each of six verbs: three regular and three irregular (directions and one example in appendix).

The sub-test on relativization (four items) asked the subject to combine two short sentences into one, following examples using qui or que (directions and one example in appendix).

RESULTS OF THE ERROR ANALYSIS

One would expect that the number of error types present only among the Anglophones would vary with the gap between the global scores of the Francophones and Anglophones on each test:

Test	Group Mean of Fr. Control Group	Group Mean of Anglo- phones	Difference between Group Means F-A	No. of syste- matic ² error types limited to Anglophones	Grade
Negation	95.25%	61.63%	33.62%	9	7
	95.62%	80.87%	14.75%	8	9
Interrog- atives	100.00%	63.36%	36.64%	2	7
	99.54%	87.27%	12.27	2	9
Verb tense	89.33%	27.38%	61.95%	5	7
morphology	88.33%	78.44%	9.89%	4	9
Relativi- zation	90.50%	68.75%	21.75%	4	7
	97.50%	81.25%	16.25%	4	9

(Cf. Connors,
Ménard,
Singh et
al., 1978
pp. 74-75).

Thus we see that the number of error types well represented among Anglophones and not at all among Francophones does not vary in proportion to the differences between their group means on each test. This suggests that the quantitative and qualitative differences between the performance of the native and that of the non-native speakers are two different phenomena.

One might suspect that the absence from the Francophone control data of errors found in the Anglophone experimental group data is the result of "accidental gaps". That is, if the Francophone sample were large enough, we would eventually find in it errors of all the types found among the Anglophones. There are two reasons for thinking that this is not the case:

1) We have retained for consideration here only those error types that were "systematic" in the Anglophone sample, that is, those represented by ten or more instances (among 101 subjects altogether). If native speakers faced with the same task were also susceptible to these types of errors, they should have shown up at least once in the French control data (46 subjects altogether).

2) The number of error types present only among the Anglophones on each test is not, as we just saw, predictable from their group mean scores on the same test, nor from the gap between the scores of the Francophones and those of the Anglophones.

Thus the presence of certain errors among the Anglophones (but not the Francophones) is not just a reflection of worse performance in the task by the former group. Their learning of

French (insofar as it is represented in this task) is not, I claim, just a duplication (at a lower level) of the acquisition by the Francophones.

Nor does this reduce us to interference as the main explanation for the errors made only by the second-language learners, as McLaughlin (1978), for example, claims. If we look at the nature of the systematic errors unique to the Anglophones here, we see that interference can explain in some cases, but not in others, the errors in such a structured task.³

We examined the most frequent systematic and uniquely Anglophone error in each of the four tests for which the error analysis was done (negatives, interrogatives, verb morphology and relativization). Then we divided the affected sentences into two categories: those which could be literal translations from English into French and those which could not. This judgment was made on the basis of whether the part of the sentence which was affected by that error read like a (faulty) literal translation. The errors studied in this way were the position of the negative word in the negation test, verb person in the interrogatives test, failure to use an infinitive stem (where necessary) for the future tense in the verb morphology test, and the use of qui where que was required on the relativization test. The following are examples of sentences (containing the most frequent error on each test) which did and did not look like literal translations:

Test	Error	Could be literal translation	Not literal translation
1) Negation	Neg. placement	*Non, elles ne jamais vont au cinéma.	*Ne personne est venu.
2) Interrogatives	Person of verb		*Où tu t'en vais?

The verb person errors were almost entirely limited to writing first person vais after second person tu. This happened no doubt because the indirect question used to elicit the direct question was in the first person and, in regular verbs, first and second person are homophonous. This, of course, is the case in English as well, but that does not give us reason to assume that the overgeneralization is an Anglicism. There was also, however, one frequent error on this test (made once also by one Francophone and thus not included among "systematic, uniquely Anglophone errors") which clearly looked like interference: inversion of Aux with the subject SN. This produced the order: Aux + SN + p.p., e.g. *Combien d'argent ont les enfants gagné?

Test	Error	Could be literal translation	Not literal translation
3) Verb morphology	Failure to use infinitive as future stem	_____	*Mon ami prendé l'autobus pour aller à l'école

The morphology of the future tense in French does not have a parallel in English which could cause interference.

4) Relativization	Wrong relative pronoun: <u>qui</u> for <u>que</u>	*Le travail qui j'ai commencé hier est très facile.	_____
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In spoken English, the nominative, [+human] relative pronoun who is the unmarked form, replacing the accusative. As for [-human] which and neutral that, they are of course invariable. Thus, substituting qui for que could be caused by interference in that the nominative is taken as the one invariant form.

We have seen in connection with the test on verb morphology that there are some areas of the grammar of the second language that do not lend themselves to interference errors because there is no possible analogy with the first language of the learner. Percentages of interference and non-interference errors on any grammatically structured task such as those presented here must be seen in this light. What we have seen here is that the systematic errors unique to the Anglophone French learners (*vis-à-vis* their native controls) included some interference- and some non-interference-based errors. It is only the principal errors of the negation and the relativization tests which could be interference errors. On the negation test, possible interference thus accounted for 11/24 cases of the "Neg. placement" error in Grade Seven and 2/7 cases in Grade Nine. On the relativization test, all the que → qui errors could have come from interference, for the reason given above.

Other studies (Dulay and Burt, 1972; White, 1977) have counted interference, "developmental", and "other" errors in second-language corpora and have found that most errors were developmental (shared by native acquirers), and that interference errors were less important than "other" errors. It is the existence of this "other" category of errors which is consistent with the relatively constant morpheme-accuracy order found among second-language learners on the one hand and the difference between this order and that found for native acquirers on the other (see below).

The relative importance of these three categories of error types depends in part on the type of structure affected, as we

have just seen in comparing the sources of the most frequent error on each of the four tests reported above. It also depends on the type of linguistic task, as we found when informally comparing our subjects' spontaneous writing (which was heavily Anglicized) to the highly structured writing in these tests (where the students had relatively little chance to Anglicize), and perhaps on level of proficiency (Taylor, 1975; but cf. White, 1977). In parallel fashion, Larsen-Freeman (1975) and Mazurkewich (1977) found that type of linguistic task affected the accuracy order of a set of English morphemes (see also Rosansky, 1976).

In theory, at least, the non-interference, non-developmental errors here could be the result of the interaction between the nature of French and the learning abilities of our immersion subjects, who have already acquired a language. Independent evidence for this line of explanation is found in the morpheme studies. The combined results of Dulay and Burt (1974) and Bailey, Madden, and Krashen (1974) showed that second-language learners, regardless of first language and age, had a similar accuracy order for English morphemes (when the method of testing was held constant) and that this order was different from the first-language acquisition order found by Brown (1973) and de Villiers and de Villiers (1973). This of course excludes interference as an explanation for the English-as-a-second-language morpheme accuracy order. It also tends to weaken the hypothesis of the identity of first- and second-language acquisition processes⁴.

In short, error studies have long recognized three kinds of second-language errors, according to their source, sometimes calling them:

- 1) Developmental errors: those which first-language acquirers also make,
- 2) Interference errors: those which show influence from the mother tongue of the learner, and
- 3) "Other", "Unique" or "Idiosyncratic" errors: those which are neither (1) nor (2). I claim here that it is the existence of (2) and (3) which, along with the morpheme-order studies, indicate that first- and second-language learning are in part qualitatively different.

The argument that $L_1 = L_2$ is generally based in part on the fact that Dulay and Burt found very similar rank orders for the accurate production of certain English morphemes by bilingual children of different mother tongues. But again, the Brown and deVilliers' rank orders were similar to each other and different from the Dulay-Burt order. Those, therefore, who say that $L_1 = L_2$ mean that, since one cannot attribute the $L_1 - L_2$ learning differences to differences among the first languages of L_2 learners, they must be a function of differences in psychological

maturity between L_1 and L_2 learners. Like the tendency to make "unique" errors, however, they could be facts about English, for example, as seen by an ESL learner, whatever his age. His linguistic experience may lead him to treat English differently from the way the L_1 acquirer does.

I think that the parallel between child acquisition and non-child learning must be sought on a more abstract and general level: the child acquirer, like the adult or adolescent learner, exhibits partial impermeability to linguistic input, which in the child is totally curable and usually totally cured, but which remains chronic in the adult second-language learner, who almost never becomes a native speaker.

The insistence, in the current second-language-learning literature, on the notion that the two processes are essentially identical, seems misplaced. Ordinary intuition and everyday experience in partially bilingual societies (like Montreal) tell us that the typical outcome of the two processes is so different that there must be some differences between the processes themselves. Just as empirical studies have shown that adults are better language learners in controlled situations (Cook, 1978), the most casual observation tells us that children are better in real life. Some psycholinguists say that it is the differences between the two kinds of organisms at the outset (infant vs. non-infant) that cause the differences in the outcome (e.g., *ibid.*). But these differences in the organisms must create divergences in the processes. Even if it is the case that psycholinguistic studies have failed to pinpoint consistent, qualitative differences between child language acquisition and non-child second-language learning, that does not indicate that the differences do not exist. Rather, it shows that our research methods have failed to account for the differences in result between adult and child language acquisition which are so obvious to the man in the street.

NOTES

¹This question was first posed, to my knowledge, by Raj. Singh (personal communication).

²"Systematic" error types are those represented by ten or more cases among the Anglophone immersion subjects.

³In an analysis of composition errors made by a group of subjects from the same pool as our sample of Anglophone immersion students, however, we found that a random sample of their more spontaneous written French was almost entirely limited to structures identical to English ones. There were of course some probable interference errors, too, such as the placement of personal pronouns after the (non-imperative) governing verb, e.g. : *Je lave moi.

⁴But as Rosansky (1976) points out, accuracy order (at one

point in time) is not the same thing as (longitudinal) acquisition order, determined by noting the order in which subjects furnished the correct form of the morpheme in 90% of obligatory contexts (Brown, 1973). When Padilla (to appear) gave the Bilingual Syntax Measure (Burt, Dulay, and Hernandez, 1973) to native-speaking bilingual children, it was found that young children showed an order similar to the Brown acquisition order, but older children less so.

Appendix: Directions and one of the examples given for each test

1. Negation:

Directions: Answer the following questions in the negative form.

Example : Est-ce que Jean a dix dollars?

Non, Jean n'a pas dix dollars.

Directions: Answer the following questions in the negative form,
GIVING THE OPPOSITE OF THE UNDERLINED WORD.

Example: Vas-tu quelque part?

Non, je ne vais nielle part.

2. Interrogatives:

Directions: Following each request (1-11) ask the proper question.

Example : Demandez-moi ce que Gilles a dit.

Qu'est-ce que Gilles a dit?

3. Verb tense morphology:

Directions: Put the underlined verb in the following sentences in:

- a) "passé composé"
- b) imperfect
- c) future

Example: Louise aide sa mère à cueillir des fleurs.

a) Louise a aidé sa mère à cueillir des fleurs

b) Louise aidait sa mère à cueillir des fleurs.

c) Louise aidera sa mère à cueillir des fleurs.

4. Relativization:

Directions: For each of the numbers of this exercise, combine the two sentences in order to make one sentence.

To do this, follow the examples.

Example: La maison a brûlé en fin de semaine. Mon ami aimait tant la maison.

La maison que mon ami aimait tant a brûlé en fin de semaine.

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LEVEL OF ASPIRATION AND ATTRITION IN FOREIGN LANGUAGE LEARNING

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Each year in September, a new crop of hopeful students marches into our school and college foreign language classrooms, eager and ready to learn. And each year a disturbingly high percentage of those learners walk out of those same classrooms vowing never again to study a foreign language. What's wrong? What happens to effect such a discouraging transformation?

The problem of attrition among second language learners is a disconcerting one to classroom teachers and researchers alike. The practitioner sees its effects in the shrinking class size from elementary to advanced courses. The scholar who investigates the process of second language acquisition sees her subject pool dwindle away as the semesters pass.

Explanations for the lack of student persistence abound. In a representative study Obanya (1977) examined the attributions for lack of success given by Nigerian secondary school students who had begun the study of French in their first year of high school and subsequently dropped it. Obanya gave the students a list of 11 possible reasons for dropping French, and asked them to rank order those reasons. He compared their responses with those of a group of teachers of French. Obanya found that both students and teachers ranked "poor teaching" as the number one cause of dropouts, but that the two groups disagreed in their rankings of other important factors. The students ranked insufficient aptitude and interest as important reasons for their lack of success (3/11 and 2/11, respectively). Teachers, in contrast, ranked aptitude as relatively unimportant (8/11). They gave relatively high ranking to "laziness" (4/11) as a reason for lack of success; students ranked it last in importance (11/11).

The Obanya results suggest discouragement on the part of students and some amount of cynicism on the part of teachers. They hint at the existence of an 'expectancy gap' between teachers and students. It appears that each group enters the learning situation with expectations about what the teaching/learning experience is going to be like; the evidence suggests also that members of each group meet disappointment.

The present study investigated the nature of that 'expectancy gap'. It explored the dimension of student expectations that could be called their "level of aspiration" -- "What do you think you'll be able to do in French?" and found some illuminating links

between that and some more commonly studied foreign language learning variables.

Of "Student expectations", the reader may say, "What have I heard about them before?" The probable answer is: "Not very much." Despite the avalanche of research on affective factors in foreign language learning (see, for example, Schumann 1975), relatively little attention has been paid to the role of learner expectations in influencing the level of achievement in second language acquisition. Research on expectations in foreign language learning has focused on the effect of parents' and teachers' expectations on student performance. Spolsky (1969) has cited research on the "Pygmalion effect": students whose teachers have been told that they will perform well do in fact excel, and students whose teachers believe that they have low ability levels perform badly. In addition, Gardner and Lambert (1972) have indicated that the level of interest in the support for foreign language study by the student's parents can have an effect on his/her level of achievement. However, little research has focused on what the students themselves predict will happen when they and the target language meet. This is surprising, since both theories of the relation of motivation and performance and research evidence outside the field of foreign language learning indicate solid connections between level of expectation and subsequent achievement.

The notion of expectancy--an individual's subjective estimate of the probability that effort will be causally linked with reward¹--figures prominently in the work of cognitive psychologists such as Rotter, Chance, and Phares (1972). In their theory of factors which affect the level of performance, expectancy combines multiplicatively with interest or incentive to determine the level of effort expended to reach a goal. If either expectancy for success or incentive/interest is low, the effort expended may not be great enough to result in successful performance. Applied to second language learning, this would mean that razzle-dazzle motivational programs to arouse interest in foreign language study may be in vain if the potential student doesn't believe he can learn the language; likewise, a high expectation of succeeding will not inspire effort if the student doesn't care.

Research results in the laboratory and in the field offer support for the expectancy-achievement connection. In a study of college students with high general aptitude, Todd, Tyrell and Frank (1962) found that individuals with high expectancies for success were more likely to be normal or high achievers than low achievers. A variety of laboratory experiments by Tyler (1958) and Feather (1966, 1967, 1968) showed that subjects given a high expectancy of success either by experimenter instructions or by a history of prior successes performed better than those who expected to fail. And Dweck (1975) discovered that among a group of children with very low expectations of succeeding, the combination of adequate aptitude levels and a powerful incentive was insuf-

ficient to enable them to learn.

In spite of this evidence of the connection between learner expectations and achievement, there has not been a detailed investigation of the nature of student expectations in foreign language learning. The research program of which the present study is a part is attempting to begin to fill that gap by investigating such questions as:

- How successful do students expect to be when they begin the study of a second language?
- What do reported levels of expectancy really mean--what activities do the students expect to be able to perform in the target language after a certain period of study?
- How is level of expectancy related to aptitude level?
- How is it related to interest level?
- And, finally, how is level of expectancy related to level of achievement?

Some preliminary progress has been made toward answers to the first, third, and fourth questions; those results are reported in an earlier paper (Trabert 1979) and described briefly below. Work on the expectancy and achievement connection is in progress. Finally, the question of what the learners expect to be able to do--their level of aspiration--is treated in the present paper.

The initial investigation of student expectations addressed the questions of expectancy level among students beginning the study of a second language, and of the relationships among aptitude, expectancy and interest among those students. Student expectancies and interest in foreign language study were assessed with a "student opinion survey" which was administered to 370 ninth graders on their first day of high school. The data from this instrument was combined with scores on a language aptitude measure (the Language Aptitude Battery) obtained earlier by the schools. The students were from two private high schools in southern and central New York State; one was coeducational, the other for women only. All ninth graders, not only those who planned to study a foreign language, participated in the study. The majority of the students in both schools had not previously studied a foreign language in school.

The level of expectancy for success at foreign language study was assessed by a forced choice item which asked "If you were to study a foreign language, how successful would you expect to be?" The four possible responses ranged from "highly successful" to "not at all successful." Responses to the question were distributed as follows: three percent of the combined sample² expected

to have no success at second language learning, 28% expected "little success," 63% expected "moderate success" and 6% thought they would be extremely successful.

The main body of results of this study is reported elsewhere (Trabert 1979). Of relevance to this paper are the results of the analysis of the relationship between expectancy and aptitude displayed in Figure 1. Scores on the aptitude battery were categorized as indicating low, medium or high probabilities of success at foreign language learning according to the criteria given by the test publisher, and a frequency table showing level of Aptitude x Level of Expectancy was constructed. In this circumstance a simple linear relationship between levels of expectancy and aptitude would probably be predicted. Overall this trend did obtain. Students with lower aptitude scores tended in general not to expect to be extremely successful, while no high aptitude students predicted a complete lack of success for themselves. It is the notable exceptions, however, that are significant for the present study. Fifty percent of the low aptitude students had moderate expectations, and 6.3% of them expected extreme success. Those percentages were not very much different from those for students with medium aptitude levels. Moreover, the percentage of students expecting to be extremely successful was nearly identical for all aptitude levels. In sum, then, differences in expectancy levels for the three groups were less marked than might be predicted; even many of the low aptitude students appeared to expect a significant measure of success. This finding proved to have important implications for the later study.

We remember that the results of the Obanya study suggested discouragement and disappointment on the parts of the students who dropped foreign language study. We would be better able to interpret their disappointment if we knew exactly what skills they expected to acquire when they began the study of French.

The present study, done in conjunction with the investigation summarized above, was aimed at finding out in some detail what language skills American ninth grade students expected to acquire. The question posed in the first study had been at what level the student expected to perform; in this second stage the student was asked to specify what kinds of competencies s/he thought that level of performance would entail.

The variable investigated by the latter question was labelled "level of aspiration." It was assessed by asking the students to identify from a list of activities requiring the use of the target language those they expected to be able to perform by the end of their first semester of language study. The students were asked to respond to four questions of the following form:

If I were a(n) EXTREMELY SUCCESSFUL/MODERATELY
SUCCESSFUL/LITTLE BIT SUCCESSFUL/NOT AT ALL

SUCCESSFUL language learner, at the end of my first semester of study, I think I would be able to:

There followed for each question a list of activities which required the use of the foreign language, divided into speaking/listening and reading/writing categories. Students were asked to place check marks next to the activities they would expect to be able to perform. One of the questions is reproduced as Figure 2.

The questions were scored by assigning weighted values to each activity on the list, with lower numbers assigned to activities requiring a lower level of competence, and higher numbers to those requiring a higher level. The weighted sum of the activities identified at the level of expectancy given by the student in the earlier study was taken as an indication of his/her level of aspiration. The range of possible values on the level of aspiration variable was divided according to the following categories: very low aspirations; low aspirations; moderate aspirations; high aspirations; very high aspirations. Figure 3 shows the assignment of activities to levels. Identification of expected competency at a certain level was assumed to include mastery of the activities at lower levels as well. For example, a student who indicated a moderate level of aspiration was presumed to expect to be able not only to read a menu using a dictionary but also to count to ten and read road signs.

Data analysis of responses to the level of aspiration questions concentrated on explicating the relationships among levels of aspiration, expectancy for success, and aptitude. Results of that analysis are displayed in Figures 4 and 5. Figure 4 shows level of aspiration arrayed by aptitude level. As the bar graph indicates, the distribution of aspiration levels from very low through high is similar for the three levels of aptitude. None of the high aptitude students expected to learn "nothing at all", and the percentage of high aptitude students with very high aspirations was markedly higher than the percentage for the other two groups; however, the general pattern of results for the three aptitude categories was similar.

The results of the analysis portrayed in Figure 1 (Aptitude x Expectancy) had indicated that low aptitude scores did not unfailingly predict a low expectancy for success. Here again we see that low aptitude students did not lag behind the other groups in their predictions of the levels of competency they would be able to attain. Ninety percent of students categorized as having a low probability of success reported aspirations at the moderate level or above; they expected to be able to perform activities such as ordering a meal or reading a storybook with many pictures. Fifty percent of the low aptitude students had high or very high aspirations; they expected to be able to travel as a tourist in a country where the target language was spoken and read a novel or

a newspaper. Among students in the medium aptitude range, about 60% had high (50%) or very high (9.1%) aspirations. Approximately 90% reported at least moderate aspirations. Students with a high probability of success differed from those of moderate aptitude only in the proportion of responses in the two high range categories. Again, 60% reported aspirations above the moderate level, with about 40% aspiring to 'high' and 20% to 'very high' performance levels. Only about 3% of the high aptitude students reported aspirations below the moderate level.

Figure 5 displays the results of an examination of level of aspiration across different levels of expectancy. There were very few (9/337) persons who had said they expected to have no success at all at foreign language learning; three of those had moderate aspirations, the other six had low aspirations. Among those who expected to have little success, 20% had high aspirations, 62% had moderate aspirations, and 18% had low aspirations. This shows a total of 82% with aspirations at the moderate level or above. By far the largest group of students had reported moderate expectations for success at foreign language learning. Of those, approximately 68% reported high or very high aspirations, with another 30% claiming moderate aspirations. Therefore, nearly the total sample expected to be able to perform at least at the moderate aspiration level by the end of their first semester of study. Among students with a high expectancy of success, 88% had aspirations in the high or very high ranges with an additional 7% in the moderate range.

The earlier study of expectancies had suggested that the examination of the learner's expectations about his/her probability of success might add an important dimension to our knowledge of the process of second language learning. The results of that study indicated that although a weak positive correlation ($r = .2371$) between expectancy and aptitude did exist, in general expectancies tended to run in the high direction for all three aptitude categories.

The present study went on to ask what aspirations for the acquisition of specific competencies lay behind those general predictions of successfulness. The results indicated:

- high aspirations within all aptitude categories
- high aspirations within most expectancy categories

These data suggest that the students in the sample came to their first foreign language class with optimistic predictions of what they would be able to accomplish in their initial months of study. Further, the data begin to suggest a possible explanation for the results of the Obanya study.

Remember that those Nigerian students who had discontinued

the study of French cited lack of aptitude as a leading reason for failure, whereas teachers named laziness or a lack of effort. If the students entered the French program with inflated ideas about the competency levels that were attainable with a certain expenditure of time and effort, and if they did in fact produce what they thought were the required amounts of each and yet failed to reach their projected levels of competency, then their attribution of failure to lack of aptitude is understandable. Further, since from their point of view they would have invested quite reasonable amounts of effort for the results they expected to achieve, the teachers' judgment of "laziness" would seem not only unfair but absurd.

And what are the implications for our classrooms and the conduct of foreign language pedagogy? A review of the level of aspiration data indicates that over half of the low aptitude students expected to be able to perform such activities as writing a letter and traveling as a tourist using the target language by the end of their first semester of study. Almost 90% of the same group expected to be able to read a menu using a dictionary and buy a toothbrush. The aspirations were somewhat higher for the higher aptitude students. Many foreign language teachers would judge these performance projections to be rather optimistic for beginning high school students, given the standard number of hours per week of instruction and teaching methods currently in use. Most teachers would probably say that a revaluation of aspirations downward would be in order.

But here the foreign language teacher is caught squarely in the middle of a classic double bind. Students who are told early in the school year exactly how much time and effort will be required to reach the levels of competence they aspire to may drop out before they've given themselves a chance to discover the depths of their interest and ability. On the other hand, failure to disabuse students of their unrealistic aspirations can only continue to result in discouragement and the subsequent high attrition rate which plagues both Nigerian and American foreign language programs.

The answer may lie in a third approach. We are told by the cognitive psychologists that both high interest and high expectancy for success are required to motivate the effort needed for performance. Perhaps we need to develop a double-barrelled introduction to language study which simultaneously emphasizes the time and hard work needed to achieve more than minimal levels of language competence and also the very great rewards which we know that competence can bring. Some training in the techniques of realistic goal setting could profitably be included in a program of this sort.

But in order for such instructional development to proceed with

precision and accuracy, further research on the level of aspiration variable is clearly called for. Future research effort could profitably be expended in at least three areas: exploration of the relationship between level of aspiration and achievement; clearer articulation of the relationships among aspiration, expectancy, aptitude, and interest; and further development of the instruments used to measure these variables.

NOTES

1. This definition is adapted from Crandall (1969).
2. Preliminary analysis had suggested no significant differences in response patterns for the two schools, so data were combined for all further analyses.

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FIGURES

(Figure 1 on following page)

If I were a MODERATELY SUCCESSFUL language learner, at the end of my first semester of study, I think I would be able to:

SPEAK/LISTEN

- ☐ go to school as an exchange student in a country where the language was spoken
- ☐ travel as a tourist in a country where the language was spoken
- ☐ greet my friends on the street and make "small talk"
- ☐ order a meal in a restaurant (using a dictionary)
- ☐ buy a toothbrush in a store
- ☐ say and understand greetings
- ☐ count to ten
- ☐ say a few words
- ☐ not be able to say or understand anything at all

READ/WRITE

- ☐ read a novel
- ☐ read a newspaper
- ☐ write a letter to my pen pal
- ☐ read children's storybooks (mostly pictures)
- ☐ read a menu with a dictionary
- ☐ write a short sentence
- ☐ read road signs
- ☐ not be able to read or write anything at all

FIGURE 2. SAMPLE LEVEL OF ASPIRATION QUESTION

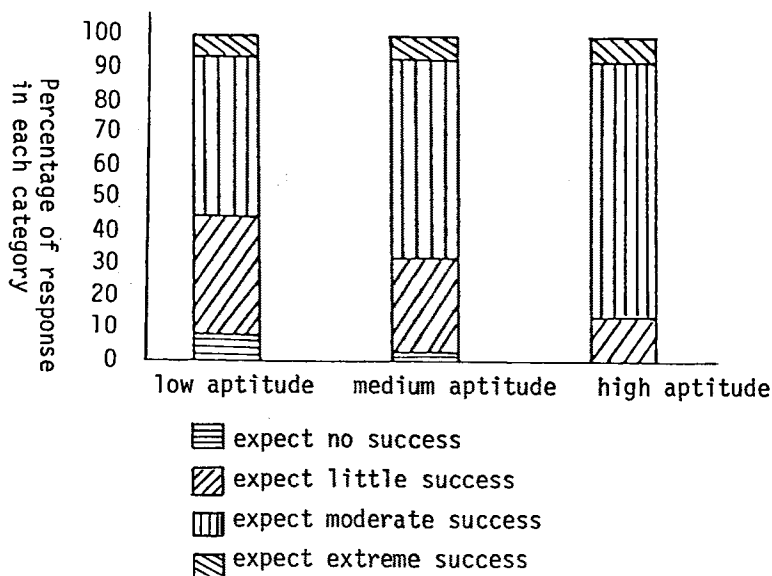


FIGURE 1. APTITUDE X EXPECTANCY

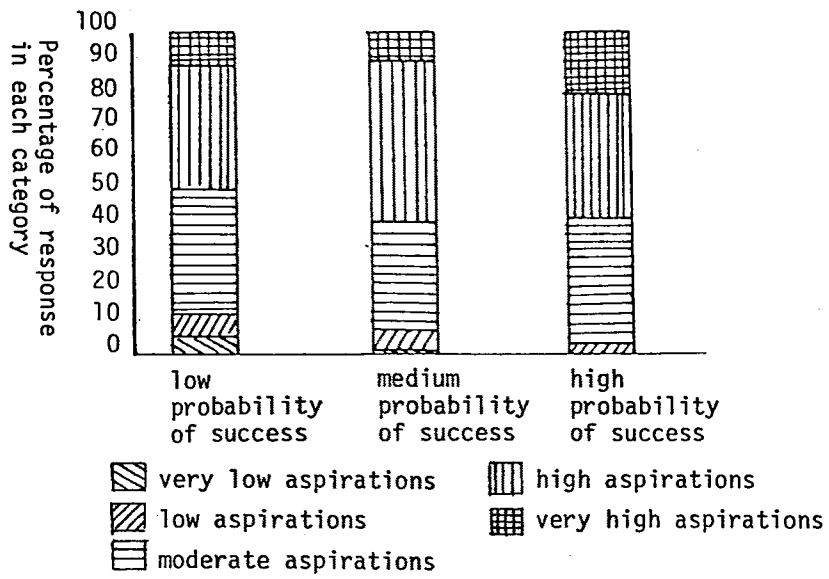
SPEAK/LISTEN

VERY HIGH	Go to school/exchange student Travel as tourist
HIGH	Greet friends/make small talk
MODERATE	Order meal using dictionary Buy a toothbrush Say/understand greetings
LOW	Count to ten Say a few words
VERY LOW	Say/understand nothing

READ/WRITE

VERY HIGH	Read a novel Read a newspaper
HIGH	Write letter to pen pal Write description of school Read letter from pen pal
MODERATE	Read storybook with pictures Read menu with dictionary
LOW	Write a short sentence Read road signs
VERY LOW	Read/write nothing

FIGURE 3. LANGUAGE ACTIVITIES CATEGORIZED BY
LEVEL OF ASPIRATION

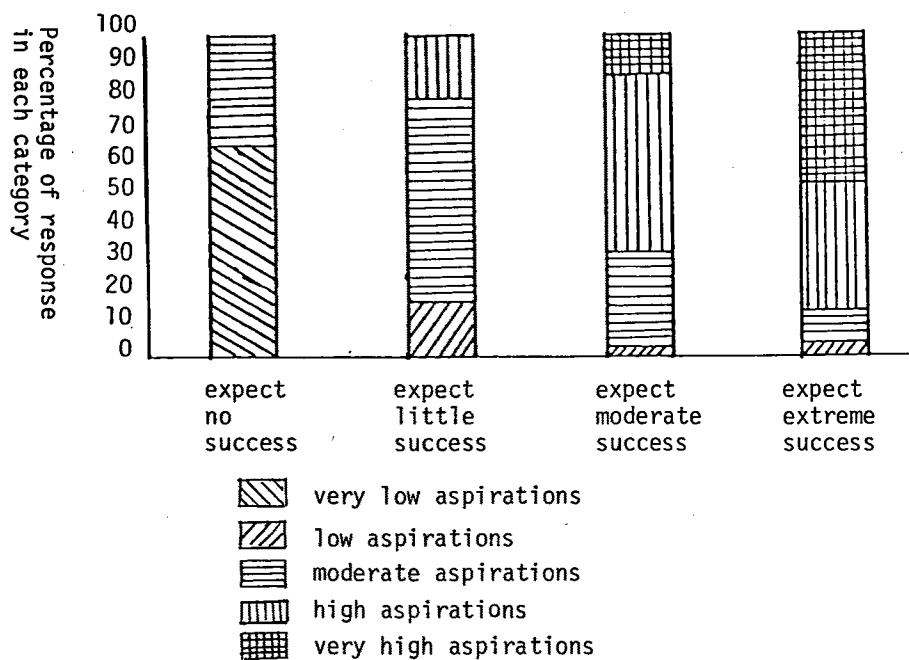


COLUMN PERCENTAGE

TOTAL PERCENTAGE

ASPIRATION	APTITUDE			ROW TOTAL PERCENTAGES
	Low	Medium	High	
Very Low	5.5	0.6	0.0	1.7
	1.3	0.3	0.0	
Low	5.5	7.1	2.9	5.7
	1.3	3.7	0.7	
Moderate	39.7	33.1	38.6	36.0
	9.8	17.2	9.1	
High	38.4	50.0	38.6	44.4
	9.4	25.9	9.1	
Very High	11.0	9.1	20.0	12.1
	2.7	4.7	4.7	
COLUMN TOTAL PERCENTAGES	24.6	51.9	23.6	100

FIGURE 4. APTITUDE X ASPIRATION



COLUMN
PERCENTAGE

TOTAL PERCENTAGE

EXPECTANCY

ASPIRATION	No Success	Little Success	Moderate Success	Extreme Success	Row Total Per- centages
Very Low	66.7 1.8	0.0 0.0	0.0 0.0	0.0 0.0	1.8
Low	0.0 0.0	18.0 5.3	1.0 0.6	3.8 0.3	6.2
Moderate	33.3 0.9	62.0 18.4	30.2 18.1	7.7 0.6	38.0
High	0.0 0.0	20.0 5.9	55.9 33.5	42.3 3.3	42.7
Very High	0.0 0.0	0.0 0.0	12.9 7.7	46.2 3.6	11.3
COLUMN TOTAL PERCENTAGES	2.7	29.7	59.9	7.7	100

FIGURE 5. EXPECTANCY X ASPIRATION

THE ROLE OF FILTERING DEVICES
IN LANGUAGE ACQUISITION
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Introduction

The role of parental speech patterns for first-language acquisition has been greatly debated in recent years. Ten years ago many linguists would have seen no reason to question Chomsky's claim that the language children hear is often random, garbled, unorganized, ungrammatical, carelessly constructed, and of limited value to the child since it gives him little information about the structure of the language he must learn. But if this characterization of the child's language input is correct, it would follow that the child cannot depend on adult speech alone to supply him with information about the nature and form of grammatical rules. Instead the child would have to be born, as Chomsky says, 'with a perfect knowledge of universal grammar, that is with a fixed schematism that he uses ... in acquiring language' (1969:88).¹

After ten years of intensive research on 'mothers' speech', however, there can be little doubt that the case for innateness has been greatly overstated. A number of researchers have shown that the child's linguistic environment is instead highly structured and particularly grammatical. They have demonstrated, moreover, that maternal speech differs from adult-adult speech in certain systematic ways and hence provides young children with a highly specialized language register that is singularly appropriate for the language acquisition task.² As Cross (1977) has observed: 'In adapting to their children's cognitive and communicative immaturity, mothers are providing young language-learning children with a data base that may be highly appropriate to their linguistic needs' (in Snow and Ferguson, p. 152).

Yet while the research on mothers' speech has led to a better understanding of the child's linguistic environment, it has also raised new questions concerning the role and effect of maternal speech. We will be particularly interested in three questions, which may be formulated thus: (1) Is maternal speech finely tuned to the child's linguistic level of development, or is it not particularly sensitive to any developmental level but shaped instead by a multiplicity of purposes?³ (2) Do the systematic changes mothers make have or do they not have a facilitating effect for the child? (3) How much do speakers other than mothers--for instance, fathers and older children--also produce the same systematic modifications in their speech when

addressing young children?⁴ Our current research was undertaken with the hope that it might shed some new light on these issues or at least reinforce the conclusions presented by other researchers.

1. Description of Experiment

As our subjects we selected a two-year-old girl, Amanda, her mother, her two older brothers (ages nine and twelve), and her older sister (age six). Both of Amanda's parents are from middle-class backgrounds, and both are native monolingual speakers of a variety of standard American English spoken in Central Texas. The father, an administrative assistant to the president of a large university, holds a B.A. degree; the mother has a high school diploma. All of the older children are in school during the day. Since the mother does not work outside the home, she is thus the major source of language input for Amanda.

Our data consist of a series of taped dyadic conversations, each thirty minutes long, taken over a period of six months. When we began our study, Amanda was two years thirteen days old (2; 0.13); at the conclusion of the taping sessions she was two years six months old (2; 6). The breakdown of the conversations is as follows: Amanda and her mother (4 tapes), Amanda and her nine-year-old brother (1 tape), the two brothers (1 tape), the six-year-old sister and her mother (1 tape), and the mother and Ms. Pointer, the interviewer (1 tape).

2. The Data

We found evidence in our data for many of the speech characteristics now often subsumed under the label 'baby-talk (BT) register,' including careful articulation, exaggerated intonation, pauses, use of diminutives, repetitions, and labeling. However, for purposes of this study, we will present data for five characteristics only: mean length utterance (MLU),⁵ sentence complexity,⁶ use of interrogatives, percentage of repetitions and expansions, and ratio of complete to abbreviated utterances. All comparisons and percentages are based on one-hundred-utterance samples, as is customary in language acquisition research since Brown (1973).

The following five tables present the relevant information for the five speech characteristics. The tapes are numbered from 1-8 to reflect the chronological order in which they were prepared. Hence the experimental tapes between the mother (M) and Amanda (A) are numbered 1, 3, 6, and 7. The control tapes contain the following conversations: Tape 2 is between the mother (M) and Amanda's older sister (S); Tape 4, between the two brothers (B₁ and B₂); Tape 5, between the younger brother (B₂) and Amanda (A); and Tape 8, between the mother (M) and Ms. Pointer (P), the interviewer.

TABLE 1
Percentage Comparisons of MLU

Test tape #	Speakers	MLU
1	M	4.63
	A	2.34
3	M	5.47
	A	2.54
6	M	4.63
	A	2.23
7	M	5.40
	A	2.58
<u>Control tape #</u>		
2	M	8.61
	S	5.00
4	B ₁	7.51
	B ₂	6.66
5	B ₂	4.01
	A	1.86
8	M	12.97
	P	10.87

Explanation of symbols:

M = mother; A = Amanda; S = sister; B₁ = 12-year-old brother; B₂ = 9-year-old brother; P = Pointer (interviewer).

TABLE 2
Complexity of Mother's Utterances

Tape	Listener	Age	Simple	Complex	Compound	Compound-Complex
1	A	2; 0.13	94 %	6 %	0 %	0 %
3	A	2; 1.09	92 %	8 %	0 %	0 %
6	A	2; 2.20	91 %	9 %	0 %	0 %
7	A	2; 3.21	89 %	11 %	0 %	0 %
2	S	6; 6.11	73 %	25 %	1 %	1 %
8	P	adult	22 %	45 %	26 %	7 %

Explanation of Symbols:

A = Amanda; S = sister; P = Pointer (interviewer)

TABLE 3
Breakdown of Interrogatives
in Mother's Speech

Tape	Listener	Age	Aux-Front.	Del.	Wh-	Tag	Rise	Huh	Total
1	A	2; 0.13	15%	9%	16%	6%	14%	6%	66%
3	A	2; 1.09	8%	4%	13%	2%	11%	5%	43%
6	A	2; 2.20	9%	5%	12%	0%	6%	5%	37%
7	A	2; 3.21	4%	3%	11%	1%	7%	3%	29%
2	S	6; 6.11	9%	0%	8%	5%	10%	0%	32%
8	P	adult	1%	0%	1%	0%	0%	0%	2%

Explanation of symbols:

A = Amanda; S = sister; P = Pointer
 Aux-Front. = Aux fronting; Del. = Deleted Aux and subject; Wh = Wh-word question; Tag = Tag question; Rise = Rising intonation question; Huh = single word clarification question

TABLE 4
Repetitions and Expansions
in Mother's Speech

Tape	Listener	Age	Repetitions	Expansions
1	A	2; 0.13	16%	19%
3	A	2; 1.09	16%	22%
6	A	2; 2.20	9%	26%
7	A	2; 3.21	4%	25%
2	S	6; 6.11	8%	8%
8	P	adult	0%	0%

Explanation of symbols:

A = Amanda; S = sister; P = Pointer

TABLE 5
Percentage of Complete vs. Abbreviated
Utterances in Mother's Speech

Tape	Listener	Age	Single Word (yes, no, huh, what, etc.)	Abbreviated	Complete
1	A	2; 0.13	37%	16%	63%
3	A	2; 1.09	14%	12%	74%
6	A	2; 2.20	9%	10%	81%
7	A	2; 3.21	20%	9%	71%
2	S	6; 6.11	9%	9%	82%
8	P	adult	7%	12%	81%

Explanation of symbols:

A = Amanda; S = sister; P = Pointer

3. Analysis of Data

We will now examine the data in the preceding tables, with particular attention to the three questions raised earlier. First, what indication, if any, is there that the mother's speech is finely tuned to the level of the child's language use, as Cross (1977) insists? Or do the data support the position of Newport et al. that the mother modifies her speech 'in accordance with the child's age', but not with 'his competence with constructional features of the language' (1977:145)? A comparison of Amanda's and her mother's MLU in Table 1 shows that they are always at least two but never more than three morphemes apart. What is more, if Amanda's MLU decreases, as in Tape 6, so does her mother's; if Amanda's MLU increases, as in Tape 3 and 7, her mother's increases as well. To show this trend more clearly, we have compared the MLU's for the different dyads visually in Figure 1.

Judging from the evidence in Figure 1, it would appear that the mother's speech is indeed finely tuned to the child's level of language use. The fluctuations in Amanda's MLU are almost perfectly mirrored in the mother's speech. The mother's responsiveness to her daughter's level of language use is particularly apparent in Tape 6. That day Amanda didn't feel very well, which is reflected in the low MLU for Tape 6 as compared to Tapes 3 and 7. If the mother's speech were not finely tuned, we would expect her MLU to remain stable rather than to covary in accordance with her daughter's.

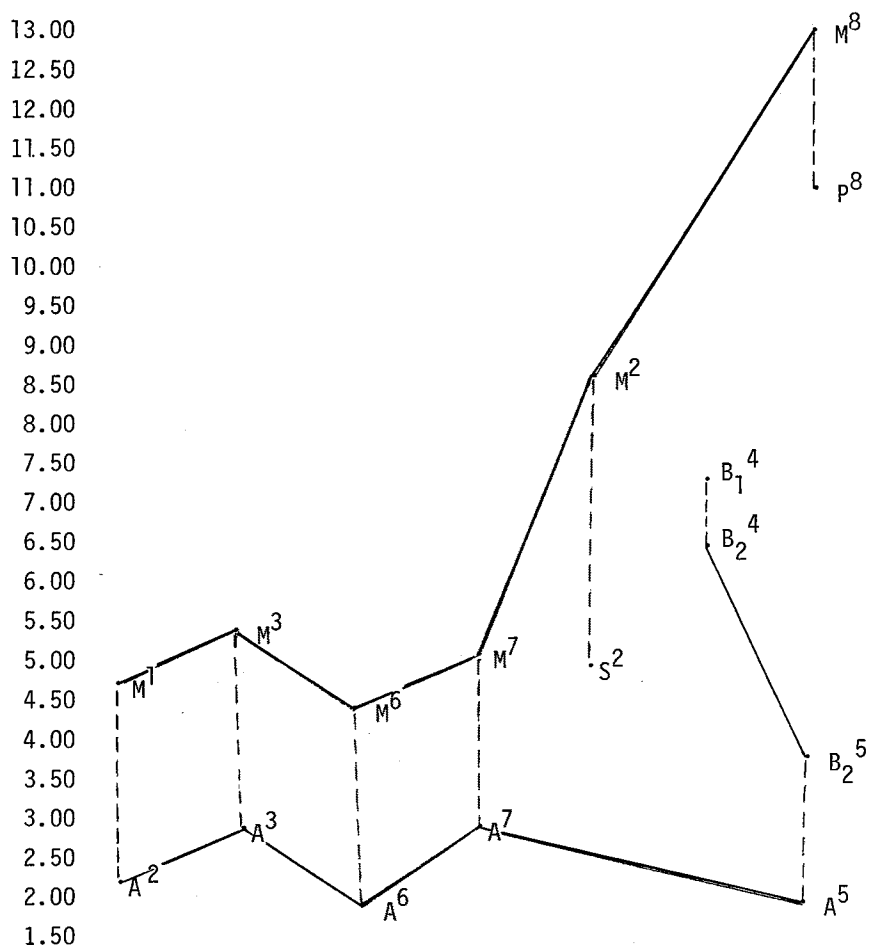
The evidence from comparisons of the other speech characteristics is not as clear as that relating to MLU. With regard to sentence complexity (Table 2), it is impossible to decide whether or not the mother's speech is finely tuned, particularly since Amanda's sentences would all be classified as simple. A comparison of columns 3, 4, and 5 in Table 2 would suggest that the ratio of simple to complex sentences is a function of the age of the conversation partner. As the age increases, the percentage of simple sentences decreases and that of complex sentences increases.

The mother's use of interrogatives shows a pattern very similar to that of sentence complexity. An inspection of the last column of Table 3 shows that the percentage of interrogatives decreases as a function of the listener's age. However, in spite of this apparent correlation between the mother's use of interrogatives and the conversation partner's age, this speech feature seems to be much more dependent on the overall discourse situation than the other features we have examined. Moreover, the data suggest that the mother's use of interrogatives as against other sentence types is not finely tuned to the child's level of language development.⁷ A covariation with the conversation partner's age is also evident for repetitions and expansions (see Columns 4 and 5, Table 4) and for abbreviated utterances (see Column 5, Table 5). Yet this evidence, too, is inconclusive

FIGURE 1

Visual MLU Comparisons

MLU in Morphemes



Explanation of Symbols:

M = mother; A = Amanda; S = sister; B₁ = 12-year-old brother; B₂ = 9-year-old brother; P = Pointer (interviewer). The superscripts refer to the number of tape (1-8).

as far as the fine-tuning hypothesis is concerned.

We have illustrated, then, a systematic modification in the mother's speech for all five characteristics. Yet whether or not the fluctuation in the mother's speech has a facilitating effect is more difficult to answer. As Wells et al. (1979) have noted, 'For the facilitating effect of these features to be demonstrated conclusively, their occurrence would have to be appropriately responsive to the child's contributions in particular sequences of interaction' (p. 7). We were able to demonstrate such responsiveness to Amanda's contribution at least for one of the mother's speech characteristics: the MLU. In fact, we see similar MLU adjustments in the mother's conversations with the older sister (Tape 2) and the interviewer (Tape 8).

Finally, our data show that older children make the same kinds of speech adjustments when addressing younger children that mothers do.⁸ Of interest in this regard is the percentage of interrogatives in the younger brother's (B₂'s) speech. In Tape 4 he uses 7% interrogatives as compared to the older brother's (B₁'s) 34%. But in Tape 5, when talking to Amanda, the percentage of interrogatives in B₂'s speech increases to 34%. A comparison of the respective MLU's shows this pattern even more clearly. See particularly the relationships between B₁ and B₂ and between B₂ and A in Figure 1.

Conclusion

Our study strongly reinforces the conclusions of those scholars who argue that maternal speech differs from adult-adult speech in systematic ways. We were able to demonstrate a co-variation for five characteristics in the speech of a mother and her two-year-old daughter. Moreover, a comparison of MLU's showed that at least for that speech characteristic the mother's speech was finely tuned to the child's linguistic level of development. Although the mother clearly adjusted her speech also with regard to the other features analyzed, the resulting co-variation appeared to be more a function of the conversation partner's age and could well support the multi-factor hypothesis put forth by Newport (1976).⁹ We argued further that the fluctuations in the mother's MLU have a facilitating effect for the child recognizing, of course, the tenuousness of our conclusion. Although most of our study was focused on the mother's speech adjustments, we were able to demonstrate that speakers other than mothers produce the same systematic modifications in their speech when addressing young children, hence raising doubts about the category 'maternal speech' as a valid language register.

Footnotes

¹ Noam Chomsky. 'Linguistics and philosophy' in S. Hook, ed. Language and philosophy. New York: NYU Press.

² For some recent trends in mothers' speech research see Catherine Snow and Charles Ferguson, eds. 1977. Talking to children: Language input and acquisition. Cambridge: Cambridge Univ. Press.

³ The second position is taken by Elissa Newport, Henry Gleitman and Lila Gleitman in their article 'Mother I'd rather do it myself: some effects and non-effects of maternal speech style' in Snow and Ferguson (1977), pp. 109-149.

⁴ Recent research also places greater emphasis on the child's role in the acquisition process. Such research is specifically intended to determine to what extent language acquisition is the result of the child's own contribution as he participates in linguistic interaction. Some interesting research relating to this question is currently being carried out by a group of linguists at the University of Bristol. See, for example, Gordon Wells, Martin Montgomery and Margaret MacLure. 1979. 'The development of discourse' (unpublished).

⁵ This concept is defined and illustrated in Roger Brown. 1973. A first language: The early stages. Cambridge: Harvard University Press, p. 54.

⁶ Definitions for this classification scheme may be found in every major rhetoric handbook, such as in J. McCrimmon. 1974. Writing with a purpose. Boston: Houghton Mifflin Company.

⁷ The relevant information has not been included in Table 3.

⁸ See also Jean Berko Gleason's 'Talking to children: some notes on feedback' in Snow and Ferguson (1977), pp. 199-205.

⁹ See Elissa Newport. 1976. 'Motherese: the speech of mothers to young children' in N. Castellan, D. Pisoni and G. Potts, eds. Cognitive theory. Vol. II. Hillsdale, N.J.: Lawrence Erlbaum Associates.

VOWEL REDUCTION IN
FRENCH, SPANISH AND
GERMAN

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The term vowel reduction is used here in the sense of reducing, lessening, or avoiding the effort in articulating certain vowels in the flow of speech.

Several recent studies have well illustrated vowel reduction in present-day English. As an example may be mentioned Lyn Kypriotaki's paper on 'Initial Syllable Deletion in Rapid English Speech,' read at the Kentucky Foreign Language Conference in 1972. My paper attempts to illustrate vowel reduction in French, Spanish and to a lesser extent in German.

The objective of this short paper is obviously not a thorough presentation of the phenomena of articulatory economy, but only a modest offering of examples from three foreign languages, for those who are not specialists in those languages.

By way of introduction, permit me a brief review of the historic debate concerning the causes of articulatory changes in the flow of every-day speech.

This debate reflected opinions of scholars in the field of historical phonology who were often comparativists in the vein of Jakob Grimm and who carefully examined the sequences of vocalic and consonantal mutations presented by Grimm in his famous Law. They were justifiably anxious to explain for what reason, if any, the pronunciation of words in different languages would change, giving birth to dialects and eventually to new national languages.

In 1873, a German linguist named Curtius¹ stated in one of his publications that the ease of articulation, die Bequämlichkeit, is and remains the main reason for sound-changes under any

circumstances.

W. D. Whitney, at about the same time, was defending articulatory economy as a legitimate tendency to neglect and eliminate distinctions which are practically unnecessary.²

In reaction to that, Hermann Paul argued that the convenience or ease theory was erroneous in relating the appearance of a sound change to some particular manifestation of laziness or tiredness.³ However, he admitted that if the replacement or dropping of a sound has become the habit of the majority of speakers, the coming generation will naturally adopt the pronunciation of the majority of its elders, particularly if it means more convenient articulation.

This idea of linguistic gaps between generations may well have led to Herzog's theory, which claimed that the phonological system of each new generation is bound to be somewhat different from that of their parents.

At the beginning of this century, Otto Jespersen supported again the articulatory ease theory, and illustrated it by a parallel between rapid writing and rapid speech. When we hurry, our written symbols take on distorted forms, just as some of our speech sounds are apt to be slurred or even left out. The following quote summarizes his position: "All droppings of sound whether consonant (as /t/ in E. castle, postman, etc.) or vowels (as in E. perhaps /praeps/, business /biznes/) by their enormous number in the history of all languages form a strong argument in favor of the ease theory"⁴ Roman Jakobson, of the Prague School, generally agreed that in rapid speech, due to the tendency toward the least articulatory effort, the phonological value of certain phonological differences becomes attenuated.⁵

On the opposite side, the venerable Ferdinand de Saussure argued that the choice of a new (faulty) pronunciation is completely arbitrary and speakers make such choices without any obvious reasons.⁶ Leonard Bloomfield, by and large, sided with DeSaussure in the question of arbitrariness.

There also were some attempts to relate phonological changes to turbulent periods in a nation's history. From all appearances the political

turbulence of the sixties in America and several European countries might be linked to at least some of the non-standard speech phenomena we perceive in our own time.

Non-standard speech phenomena are popularized by the advertising media to an unprecedented extent. There is also the factor of the premium we put on time. It appears that the majority of articulatory changes that are typical of the speech habits of the present century are due to the increased frequency of situations in which we are anxious to speak a little faster and with a little less effort. It's perhaps inherent in the genius of a language and of its speakers that they can keep simplifying the phonological system without affecting its efficiency.

Modern oral communication tends to avoid phonological redundancies, and articulatory economy is generally accepted by all strata of society. The high degree of linguistic conformity that can result through interaction between persons of different social backgrounds has been demonstrated in several studies by William Labov.

There seems to be sufficient historical and modern spectrographic evidence to the effect that fluent speakers have a natural tendency to drop redundant consonants as well as vowels. However, probably through intuition, the fluent speaker avoids deleting redundant sounds when deletion would create non-native consonant clusters or be responsible for a change in meaning. For example, educated speakers of English will pronounce attend as /tend/ in the phrase "I'd like to attend the concert" but they will not shorten attend to /end/ since that would change the message. D. A. Wilkins put it rather well when he said: "Most educated speakers have some sense of what is correct and the conviction that this correctness is found in their own speech."⁸ When speakers of American English ignore the distinction between the vowels in cot and caught (the preterit of the verb catch) they are simplifying their vocalic system. Granted, the simplification is often unintentional since the reasons for it are more acoustic than articulatory. Some speakers tend not to perceive an acoustic difference and are not much bothered by homonymy.

Let me remark at this point that the reduction of two vowel phonemes to one is normally acceptable only when the functional yield or functional load

of the opposition of the two vowels is relatively low. In other words, the resulting homophones are not very likely to cause ambiguity.

As we look at present-day French, we observe that more and more speakers are accepting the reduction of the vowel /e/ and the vowel /ɛ/ to a sound somewhere in between. This occurs very frequently in the verb endings of the future and the conditional or in pairs like fête (feast) and faite (a form of the past participle of faire). It also occurs, occasionally, in a pair like poignée (handful) and poignet (wrist or cuff), where the difference of gender rather than the difference of the final vowels tells which is which.

Teaching French as a foreign language, I am glad that fewer and fewer speakers, at least in Paris, bother to distinguish between the central nasal /œ/ and the frontal /ɛ/, which are so difficult to keep apart for most learners. Also the negative nasal prefix /ɛ̃/ instead of /in/, before a vowel initial stem, no longer seems strange to native speakers. This leads to speculation that /ɛ̃/ will become the negative prefix for all productive adjectives ending in -able. For example, inoubliable /inoubliabl/ (unforgettable) may be pronounced /ɛ̃noubliable/; inoffensif /inofāsif/ (harmless) may become /ɛ̃nofāsif/. Many speakers simply tend to eliminate phonological irregularities which are not relevant.

With regard to the vowel called "e" caduc, reduced /e/ or schwa, Aurelius Sauvaget (1972) confirms the increasing tendency toward dropping the vowel altogether.¹⁰ Vincent Lucci, in a recent article, studied the articulation of the schwa in various types of French speech and came up with the following percentages: in reading aloud from a newspaper, a professor retained only 44.45% of the schwa sounds, and when lecturing the percentage dropped to 33.6%.¹¹ The higher the frequency of a word, the stronger the tendency for the schwa to be reduced to zero. A few examples are given in Table I.

I am painfully aware of the lack of sophistication which characterizes this and the other tables presented here. One could well expect some attempt at drawing up several fast-speech vowel reduction rules in the generative transformational vein. Perhaps, one would also like to see me

establish a strength hierarchy showing which vowels are most or least reducible. With respect to the former, I found myself unable to arrive at any half-way decent forms of reduction rules that would contain sufficient information covering the facts of the examples. With respect to strength hierarchy, I cannot but say that /e/ is the least reduction resistant vowel and that it is difficult to establish a vowel strength hierarchy for the languages in question, as was already demonstrated for Spanish by Ismael Mercado in his recent article on the subject.¹²

While the French interconsonantal /ə/ stands out as the vowel that's being frequently deleted, Spanish has several such vowels that tend to be reduced or coalesced. Many fluent speakers of the American Spanish dialect are particularly apt to coalesce two identical vowels of adjacent syllables. Examples of this synalepha are given in Table II. In present-day American Spanish, there is a strong tendency to drop word initial vowels, just as we do in English. (E.g., about /bout/, around /round/.) Yet since a simple dropping of the /e/ in the forms of the verb estar (to be) would create the normally avoided cluster of /s/ and /t/ at the beginning of an utterance, the /s/ is dropped also. Examples are given in Table III.

It should be noted, however, that while the /e/ of estar is dropped, the /s/ is retained in such expressions as: donde está /dondesta/ (where is), como está /komosta/ (how is) and aquí está /akista/ (here is).

One should also note that some speakers do not drop the vowel completely but reduce it to a schwa as in como está usted, pronounced /komoəstaeste/ (how are you), or su padre y su madre, pronounced /supadreəse madre/ (his father and his mother).

Another phenomenon heard in rapid Spanish is the shift of stress to form diphthongs out of syllabic vowels, as in the pronunciation of maíz (corn) as /majs/ or baúles (trunks) as /bauləs/. However, educated speakers consider this unacceptable even when they do not object to the diphthongs formed by synalepha in, e.g., noche inquieta pronounced /nočejnkJeta/ (restless night) or fuerza unida pronounced /fwersaunida/ (united force).

In rapid Spanish, just as in French, the vowel of the preposition *de* is being dropped and as a consequence the preposition is not articulated at all when followed by a word beginning with *de-*. E.g., *oficina de desarrollo* is pronounced /ofisinasdesarojo/ (development office) or *línea de demarcación* is pronounced /lineademarkasjon/ (line of demarcation). French examples of this phenomenon would be: *mois de décembre* pronounced /mwadesãbr/ (the month of December) or *on vient de décider* pronounced /õvjẽdesider/ (they've just decided).

Many present-day French and Spanish speakers also tend to replace the vowel /i/ by a schwa in such cognate words as are shown in Table IV.

As to the vowels of German, we find that the less formal the register of speech, the less frequently the schwa is retained. (It would be interesting to have the kind of percentages that were provided for French in the study by Vincent Lucci.) For example, the schwa in colloquial German is frequently deleted (1) in the endings *-en*; (2) in all cases where it is followed by a pronoun beginning with a vowel; (3) in interconsonantal position, where its deletion may cause a slight unvoicing of voiced consonants; (4) in such words as *der Böhme* pronounced /dərbø̯m/ (inhabitant of Bohemia). See Table V.

TABLE I

la semaine	/lasəmɛn/ > /lasmɛn/	'the week'
la fenêtre	/lafɛnstr/ > /lafnɛtr/	'the window'
la semelle	/lasəmɛl/ > /lasmɛl/	'shoe sole'
je vois	/ʒəvwa/ > /ʒvwa/	'I see'
deviner	/dəvine/ > /dvine/	'to guess'
recueillir	/rəkøjir/ > /rkøjir/	'to collect'
dessus dessous	/dəsydəsu/ > /dsydsu/	'upside down'
je le demande	/ʒələdəmād/ > /ʒəldmād/	'I ask for it'
nous le demanderons	/nulədəmādrø/ > /nulədmādrø/ or /nuldəmādrø/	'we will ask for it'
on se demande ce qui	/õsədəmādsɛki/ > /õsədmādski/ or /õzdmātski/	'one asks what...'
je t'ai vu	/ʒətsvy/ > /ʃtsvy/	'I saw you'
je te l'avais dit	/ʒətlavədi/ > /ʃtlavədi/	'I told you that'
je ne veux pas de ça	/ʒənvøpadəsə/ > /ʒnvøpatsə/ or /ʒvøpatsə/	'I want none of that'

tu n'as pas le droit de t'arrêter
 /tynapalədrwadətarste/ > /tynapaldrwatarste/
 'you don't have the right to
 stop'

vous la jetez /vulaʒəte/ > /vulaʃte/ 'you throw it
 away'

According to the recordings of the Institut de phonétique de Paris, the only difference between vous la jetez and vous l'achetez (you buy it) is the length of the vowel preceding the somewhat unvoiced /ʒ/.

TABLE II

(Since the correspondence between orthography and pronunciation is closer in Spanish than in French, the standard articulation transcription is left out.)

mi hijo	/mixo/	'my son'
para atrás	/paratras/	'through the back'
para acá	/paraka/	'through here'
voy a hacer	/bojaser/	'I'm going to do'
da a la calle	/dalakaje/	'opens on the street'
fué este	/fueste/	'it was this'
esto que es	/estokes/	'that which is'
de este año	/desteaño/	'of this year'
le he dicho	/ledičo/	'I told him'
tú te ríes	/tuterís/	'you're laughing'
aquí está	/akista/	'here it is'
ya estoy	/jastoj/	'I'm already...'
no estoy	/nostoj/	'I'm not...'
voy a ir	/bojir/	'I'm going to go'
sí ahorita	/siorita/	'yes, right away'
a la una	/aluna/	'at one o'clock'
la oportunidad	/laportunida/	'the opportunity'
te invito a comer	/tinbitokomer/	'I'm inviting you to eat'
espérenlo en el recado	/esperenlonelrekado/	'watch for it in a memo'

TABLE III

está bueno	/tabweno/	'it's good'
estoy bien	/tojbjen/	'I'm well'
están ricos	/tanrikos/	'they are rich'
estamos todos	/tamostodos/	'we're all here'
estate quieto	/tatekjeta/	'be quiet'
estense callados	/tensekajaɖos/	'be quiet' (plural)

TABLE IV

French		Spanish
substitution	/sypstətysjõ/	substitución/sustətusjon/
constitution	/kōstətysjõ/	constitución/konstətusjon/
continuation	/kōtənʷasjõ/	continuación/kontənwasjon/
continuer	/kōtənʷe/	continuar /kontənwar/
transfigurer	/trāsʷfəgyre/	transfigurar /transʷfəɣurar/

TABLE V

geben	/gebən/ > /gebn/ > /gemn/	'to give'
haben	/habən/ > /habn/ > /hamn/	'to have'
ich habe es	/ixhabəes/ > /ixhaps/	'I have it'
ich spiele es	/ixšpiləes/ > /ixšpiles/	'I play it'
bringe es!	/bringəes/ > /bringes/	'bring it'
frage ihn!	/fragəi:n/ > /fragi:n/	'ask him'
das Gesicht	/dasgəzixt/ > /dasksixt/	'the face'
gesundt	/Gəzunt/ > /gzunt/ > /ksunt/	'healthy'
geschwindt	/gəšvint/ > /gšvint/ > /kšvint/	'quick'
der Böhme	/dərbømə/ > /dərbøm/	'a Bohemian'

The aforementioned examples in the three languages lead to the conclusions (1) that vowel reduction which does not distort meaning is an option which native speakers often prefer in rapid speech and (2) that all standard acoustic properties and morphological correctness need not be maintained for adequate communication between fluent speakers.

NOTES AND REFERENCES

¹Georg Curtius, Zur Chronologie der Indogermanischen Sprachforschung (Leipzig, 1873), p. 190.

²William D. Whitney, Life and Growth of Language (London, 1875).

³Hermann Paul, Prinzipien der Sprachgeschichte (Leipzig, 1890), pp. 36 ff.

⁴Otto Jespersen, Language, Its Nature, Development and Origin (London, 1949), pp. 261 ff.

⁵Roman Jakobson, Prinzipien der historischen Phonologie (Vienna, 1931).

⁶Ferdinand de Saussure, Cours de linguistique générale (Geneva, 1959).

⁷William Labov, especially "The Linguistic Consequences of Being a Lame" Language in Society 2 (1973), pp. 81-115.

⁸David A. Wilkins, Linguistics in Language Teaching (Cambridge: MIT Press, 1972), p. 28.

⁹See Andrew Terker, "Underlying Nasal Vowels in French" Papers in Romance 1, No.1, p.49 (U. of Washington).

¹⁰Aurelius Sauvaget, Analyse du français parlé (Paris: Hachette, 1972).

¹¹Vincent Lucci, "Le Mécanisme du 'E' muet dans différentes formes de français parlé" La Linguistique 2, XII, p. 91.

¹²Ismael Mercado, "Vowel Contraction and Homonymy in Puerto Rican Spanish" Papers in Romance 1, No. 1, p.36.

RECONCEPTUALIZATION AS A FORM OF LANGUAGE CONTACT

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I Introduction

Language contact can be studied from different points of view. The "Outside-In" approach starts with the bilingual community and its bilingual speakers, and describes what happens when two languages meet, interact, and produce highly recognizable manifestations. In this paper I am going to suggest an "Inside-Out" approach, not as replacement, nor even as alternative, but as a complementary line of investigation that may yield insights about the nature of language that are not available otherwise. This second approach starts with the adult, primarily monolingual native speaker of a language, and describes what happens to the native language intuitions of that speaker as a result of contact with another language in a nonnative linguistic setting. To the extent that language exists in both places--in the person and in society--both approaches are valid.

I call this second kind of language contact RECONCEPTUALIZATION. That means that, under certain conditions, some of the conceptual distinctions that a person has developed in the years of native language acquisition and use up to and including adulthood may be restructured in their form of expression. It is a slow process, and the speaker is rarely aware that it is taking place.

The particular nonnative linguistic setting for my data is the island of Puerto Rico, where English and Spanish are in contact; the particular native speaker is a non-Puerto Rican American who has left the mainstream language community of the continental United States to live and work on the island as a permanent resident, defined as someone who has resided on the island for at least three years, calls it home, and has no immediate plans to leave. These restrictions exclude tourists, military personnel, and other short-term visitors. There are approximately 100,000 such native English speakers in Puerto Rico whose language may undergo Reconceptualization.

The conditions under which Reconceptualization occurs are the following (all must obtain):

1. E (=native English speaker) does not participate

in the production and dissemination of neologisms in the mainstream language community, nor is E subjected to the same pressures for linguistic conformity as those experienced by members of the larger community. (These conditions are the result of prolonged geographical separation).

2. E does not feel linguistically or culturally isolated from the mainstream language community. (This is due to the availability of English-language radio, television, newspapers, and the presence of other E speakers).

3. E has daily contact with nonnative speakers of English at work and at play, and there is no difficulty in communication. (This is due to the language preference of fluent bilinguals and/or E's lack of proficiency in spoken Spanish).

4. E has relaxed the rigid standards of grammatical correctness and orthographic accuracy in English previously maintained in the mainstream monolingual community, does not judge the educational level of other persons by such criteria, and tends to simply ignore errors that do not adversely affect communication. (This is due to the fact that it is considered a serious faux pas to correct one's equals in Puerto Rican society).

5. E's exposure to Spanish started in adulthood, and included formal study of the language, i.e., it was acquired intellectually.

II Definition

Reconceptualization should not be confused with more obvious forms of language contact. Some examples will illustrate this. First, it is not lexical borrowing, either with or without assimilation, such as is typical in Spanglish¹:

- (1) La bosa dijo que tenemos que trabajar overtime.
'The boss said we have to work overtime.'

Yo me flunké el test.
'I flunked the test.'

El aire está polutado.
'The air is polluted.'

The counterpart of Spanglish among E speakers is Pringlish²:

- (2) We got caught in a terrible tapón (traffic jam).
Give me a medianoche (hero sandwich) and
a café con leche (coffee with milk).

They live in that new urbanization.
 (urbanización 'housing development')
 I'm not finished ganching the clothes.
 (gancho 'clothespin')
 Let's get this mamotreto (fat file of papers)
 ready for HEW.
 You need mucho dinero (a lot of money) to
 stay at that hotel.

The chief difference between Spanglish and Pringlish, in addition to the host language, is that Pringlish users do their mixing intentionally for effect or for convenience. Spanish words and phrases sprinkled into English impart a distinctly bilingual flavor and serve as gestures of identification with the local culture and with other E's as an in-group speech style. A switch back to unmixed English can, however, be made easily when the occasion demands (e.g., a trip to the mainland or a visitor from off the island). Spanglish users, on the other hand, do not typically command two varieties of Spanish, and are unaware of the extent of lexical borrowing from English.

Somewhere between Spanglish and Pringlish is a variety of code-switching in which the languages alternate on the clause level, either language starting the utterance:

- (3) If the boss calls, dígalos que no estoy.
 'tell him I'm not here'
Yo no lo quiero, and that's that.'
 'I don't want it'

The second kind of language contact that should not be confused with Reconceptualization is the copying of transfers from Spanish into the variety of English as a second language that I have called Englañol³. For various reasons (usually greater intelligibility) it may be desirable for E to communicate in Englañol rather than in standard monolingual English with Spanish speakers. Although many types of transfer occur, the most productive involves cognate words:

- (4) Your note (nota 'grade') on the exam is D.
 Buy your textbook in the library
 (librería 'bookstore').
 Don't molest (molestar 'to bother, annoy')
 me now, I'm busy.
 If you want it mailed, write your name and
direction (dirección 'address').
 I try to keep up with actualities
 (actualidades 'current events').

English of this kind is quite baffling to E at first, but upon learning the technique of reconstructing the intended meaning from one's increasing knowledge of Spanish, E gets used to *Englañol*, and after sufficient exposure may even accept it as normal English.⁴ It is at this point that the process of Reconceptualization begins.

III Analysis

In order to understand how Reconceptualization operates to modify native language intuitions, three points must be kept in mind. First, it is an unconscious and inevitable process, given the prerequisite conditions. Second, the nonnative setting triggers a language change that could also be independently motivated in the historical development of the language. Third, the changes are, in some way, logical improvements over the monolingual expression of the same concept. To put it differently, Reconceptualization is a potential language change made actual. It reinforces tendencies already present in the language toward regularization and more precise semantic distinctions.

Observe the following examples:

- | | |
|---|--|
| (5) before | after |
| Reconceptualization | Reconceptualization |
| a. The boat is missing some parts. | a. The boat is missing some pieces. |
| b. I have to do the shopping. | b. I have to make the shopping. |
| c. Can I substitute salad for potatoes? | c. Can I substitute potatoes with salad? |

In (a), the semantic features of part vs. piece are reorganized under the influence of their Spanish cognates, parte and pieza, which are exact translational equivalents in numerous collocations:

- | | |
|--------------------|---------------------|
| (6) part of a book | parte de un libro |
| part of an hour | parte de una hora |
| part of a country | parte de un país |
| the best part | la mejor parte |
| to take part | tomar parte |
| two parts rum to | dos partes de ron y |
| three parts soda | tres partes de soda |

chess piece	pieza de ajedrez
musical piece	pieza de música
museum piece	pieza de museo
one-piece dress	traje de una pieza
to sell by the piece	vender por piezas
piece by piece	pieza por pieza

In these examples, the tendency in both languages is for part/parte to signify an unseparated portion of a larger whole, and for piece/pieza to signify an independent entity unattached to anything else. Monolingual English emphasizes this quality of separateness in figurative uses of piece: a piece of the action, a piece of news, to give someone a piece of my mind. The two words contrast in part of a pie vs. piece of a pie, private parts vs. piece of tail/ass, break a Saltine cracker into parts vs. break a Ritz cracker into pieces. Spanish pieza de respuesta fits into the semantic pattern, but its (monolingual) English equivalent spare part does not, and, in the context of the sentence, suggests that the boat needs a new front, back, or bottom rather than screws and rudder pins, which are, in line with the established English pattern, clearly pieces rather than portions.

In (b), the aspectual functions of the verbs to do and to make are reorganized under the influence of the Spanish verb hacer, with which they form a lexical split.⁵ These verbs pose a difficult problem for Spanish-speaking learners of English because of the seemingly arbitrary distribution of do and make. Nevertheless, if we line up two groups of semantically related expressions with parallel syntactic constructions (transitive verb + direct object) we can observe a fairly constant distinction: do signifies "perform an action", make signifies "produce a result":

(7) do the cooking	make a meal
do one's best	make a good showing
do your duty	make a sacrifice
do nothing	make a gesture
do the honors	make a toast
do the shopping	make purchases

hacer compras

The Spanish expression hacer compras can be either action-oriented or result-oriented, depending on situational context, i.e., whether the shopping is for fun or a chore to be completed in the shortest possible time, and, where necessary, the Spanish speaker provides the clarifying linguistic context. However,

Reconceptualization permits the English speaker to do it through lexical choice as well; thus it becomes logical and meaningful to contrast I (like to) do the shopping (because it's a pleasant way to kill time) vs. I (have to) make the shopping (otherwise there won't be anything to eat for dinner). Other result-oriented Spanish expressions with hacer strengthen the association: hacer una pregunta 'to ask a question', hacer maletas 'to pack one's bags', hacerse profesor 'to become a professor'.

In (c), the sequential order of items in expressions involving exchange, replacement, or modification is reorganized. The motivating influence from Spanish is the behavior of the Spanish preposition por in such expressions which, if mistranslated as the orthographically similar for, will produce an opposite result:

- (8) Sustituye A por B. (you get B)
Substitute A for B. (you get A)

Sustituye papas por ensalada. (you get salad)
*Substitute potatoes for salad. (you get potatoes)

The motivating English influence is the large number of such expressions in which the thing to be replaced, exchanged, or modified is mentioned first:

- (9) Change A to B.
Replace the carpeting with linoleum.
Exchange a dollar for ten dimes.
Transform a statement into a question.
Turn your leftovers into a meal.
Trade an old Chevy for a new Volvo.
Mary has become a liberated woman.
Candy is dandy, but liquor is quicker.

The order remains constant in passive sentences:

- (10) A is changed to B.
The carpeting is replaced with linoleum.
etc.

In reconceptualized English, the more natural word order prevails, and the preposition follows suit. By requesting of the waiter that potatoes be substituted with salad, E avoids ambiguity and stays on the diet.

Thus, Reconceptualization, in a sense, "frees" the language to develop into a better instrument of communication.

IV Discussion

In this paper I have focused on language contact as it affects a native speaker in a nonnative setting, cut off from participation in mainstream language development and mainstream pressures for linguistic conformity. I have attempted to demonstrate that there are internal as well as external changes in the native language under these conditions, in which some aspects of the language are reconceptualized in the direction of greater similarity with established patterns of both the speaker's native language and the nonnative language with which the speaker is in contact.

The phenomenon of Reconceptualization raises some interesting questions about native language intuitions and the validity of theoretical models that claim to account for it. If we take the view that we have internalized all that there is to internalize by the age of five or so, and that nothing is added after that except some new vocabulary, we put the language of a native speaker in a static bind and imply that subsequent linguistic influences can only be superficial. But this leads to the absurd conclusion that our American resident of Puerto Rico no longer has a native language, since reconceptualized English is not the same English used previously.

Obviously, we must reject any theoretical model that takes such a narrow view. A native language is not only what one "knows", but also what one "feels" is appropriate. We must develop models that account for all the manifestations of language contact, models that permit native and nonnative languages to change in various directions, as they do in the real world; and that PERMIT THE INTUITIONS OF NATIVE SPEAKERS TO CHANGE AS WELL.

A native language, reconceptualized, is still a native language, and its speaker still a native speaker. It is our definition of language intuition that needs revision. I propose the following:

Language intuition is a dynamic, self-adjusting, subconscious, cognitive monitoring system that is responsive both to past linguistic experience and to present linguistic environment.

NOTES

- 1 See R. Nash, "Spanglish: Language Contact in Puerto Rico," American Speech, 45 (1970), pp. 223-233.
- 2 See R. Nash, "Pringlish: Still More Language Contact in Puerto Rico," in Kachru, Braj B. (ed), English in Non-native Context (in preparation).
- 3 See R. Nash, "Englañol: More Language Contact in Puerto Rico," American Speech, 46 (1971), pp. 106-122, and "Phantom Cognates and Other Curiosities in Puerto Rican Englañol," La Mondo Lingvo-Problema, 5 (1976), pp. 157-167. For a survey of political, social, and historical background of language situation, see "Aspects of Spanish-English Bilingualism and Language Mixture in Puerto Rico," in Makkai, A. et al., Linguistics at the Crossroads (Liviana Editrice/Jupiter Press, 1977).
- 4 An experiment was performed in Puerto Rico in which twenty Englañol sentences interspersed with five monolingual English sentences were played for evaluation of acceptability to 150 native English speakers ranging in length of stay on the island from under one month to over ten years. The curve of acceptable judgments on identical sentences rose sharply during the first three years. The experiment is described in detail in R. Nash, "Semantic Transfer in Puerto Rican English," in Andersen, Roger W. (ed), Proceedings of the Colloquium on the Acquisition and Use of Spanish and English as First and Second Languages at the Twelfth Annual TESOL Convention, Mexico City, April 4-9, 1978 (forthcoming).
- 5 For a detailed in-depth study of this problem, see Hagerty, Timothy W. and J. Donald Bowen, "A Contrastive Analysis of a Lexical Split: Spanish hacer to English do/make/etc.," in Nash, R. (ed), Readings in Spanish-English Contrastive Linguistics Volume I (Inter American University Press, 1973), pp. 1-71.

LANGUAGE AND THOUGHT IN BILINGUALS

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Macnamara (1970) argued that if Whorf's hypothesis were true, if it were the case that differences among languages caused substantial differences in cognitive functioning, bilingual persons would be in a curious predicament. They would have to conform to one of three patterns: (1) function cognitively in the manner appropriate to L_1 when using either L_1 or L_2 and then have great difficulty in understanding speakers of L_2 or being understood by them; (2) function cognitively in a manner appropriate to neither language and run the risk of understanding or being understood by nobody; (3) function cognitively differentially, in accordance with each language. Though in this case bilingual persons could communicate with speakers of either language, Macnamara claims that (a) they would have great difficulty in 'communicating' with themselves and (b) would have difficulty in explaining in L_2 what they had heard or said in L_1 .

This paper argues that the first two situations as well as 3b are indeed the case, that 3a is not, and that none can be used to refute Whorf's hypothesis *ab absurdo*.

The first implication drawn from Whorf's hypothesis corresponds to what has traditionally been called the subordinate organization of a bilingual person's two semantic systems, and the second to a compound organization. Persons organizing their semantic systems in a coordinate fashion would behave in the way described in the third situation, except that implication 3a would not necessarily follow, as will be discussed shortly.

As proposed elsewhere (Paradis, 1977a, b) this tripartite distinction (subordinate - compound - coordinate) originally presented by Weinreich (1953) can be fruitfully applied to each level of linguistic structure, provided it is realized that each individual bilingual speaker is likely to have parts of each level organized in a coordinate, compound or subordinate manner, and that this organization may change over time.

Kolers (1968) identified two hypotheses about the way bilingual persons handle information. Either all information is stored centrally and they have access to it equally with both languages, or it is stored in linguistically associated ways. Psycholinguistic experiments seemed to indicate that the actual situation of a bilingual person would combine parts of both

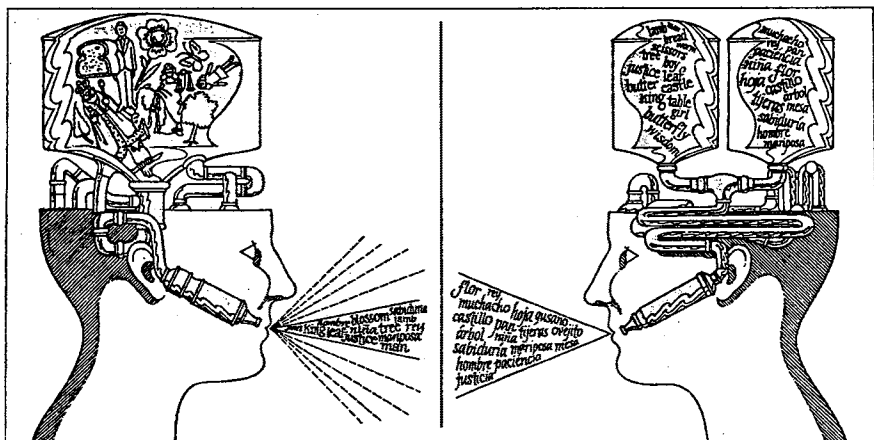
hypotheses. Paradis (1978) proposed a third hypothesis (see Fig. 1) to account for the conflicting results reported by more than fifty authors in the past fifteen years. That hypothesis also resolves the paradox of the coordinate bilingual person's alleged predicament.

The organization of mental representations of experience (or "experiential chunking") depends on the conceptual salience of an aspect of experience (which is common to all observers) on the one hand, and on its "verbalizability", or ease with which it can be expressed in language (which varies with each language), on the other (Clark and Clark, 1977:238). Bilingual persons possess one and only one set of mental representations but organize them in different ways depending on whether they verbalize a thought in L_1 or in L_2 , and to that extent function cognitively differently when speaking or decoding in L_1 and in L_2 .

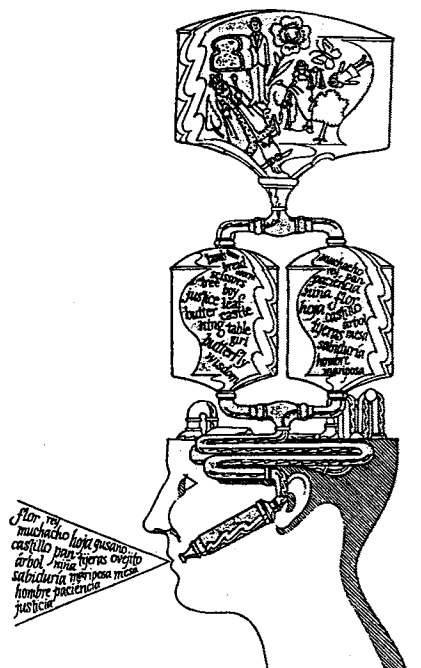
Certain brain processes evoke (bring into consciousness) what Carroll (1964:201) calls "αlinguistic concepts", that is, mental representations of things, events, relationships, and their properties, which can be verbalized when there is a corresponding semantic unit (or what Nelson [1977] calls "narrow linguistic concepts") or group of semantic units that relate to them. These non-verbal representations of experience can then be evoked by the semantic component of the appropriate word or phrase.

A given concept is easily verbalizable or "codable" (Brown and Lenneberg, 1954:458) when it can be evoked by a single word in a given language. The verbalizability of some aspects of experience will vary from one language to the next. A given notion, evoked by a single word in one language, may require a cumbersome roundabout circumlocution in another and will therefore be less easily evocable in that language. This is why a bilingual person who speaks both languages like a native might nevertheless encounter great difficulties in translating from one language into the other. Words in different languages (so-called translation equivalents) do not refer to all of the same features of mental representations. A bilingual person may be capable of noticing the salient features of a given experience without necessarily being able to verbalize them with equal ease in both languages.

The point may best be illustrated by the bilingual person's ability to understand puns (or any untranslatable idiom or cultural implication). One may perfectly understand a play on words in one language and be totally incapable of translating it into the other: one can only explain that a given word in L_2 means such and such and sounds like so, and that for instance another word is a homonym, or that it is part of an idiomatic expression, etc... In other words, one must teach a small part of L_2 to L_1 speakers to make them understand the joke. But the



Two hypotheses about the way a bilingual person handles information are represented by two arrangements of tanks. One hypothesis (left) is that all his information is stored centrally, or in one tank, and that he has access to it equally with both languages, which are represented by the various taps. The other (right) is that his information is stored in linguistically associated ways, or in separate tanks. Experiments by the author indicated that the actual situation of a bilingual person combines parts of both hypotheses. (Kollers, 1968)



The actual situation of a bilingual person may be illustrated by a third hypothesis: both languages are differentially connected to the same conceptual-experiential information store (Paradis, 1978).

Fig. 1. Three hypotheses about bilingual organization

joke itself (with its funny content) is untranslatable; it can only be explained. That, however, does not prevent bilingual persons from understanding instantly in L_1 a joke which they cannot translate in L_2 , or the reverse. That is a problem about the intertranslatability of various languages, not about communication with oneself. But it does show that bilingual persons have *direct* access to the meaning (all aspects of meaning, denotative, connotative, emotive, as well as cultural implications and the like) of each language without having to, and in some cases without being able to, translate it into the other. They understand each language directly, just like unilingual native speakers of that language, by appropriately organizing the mental representations in accordance with the meaning of the utterance. They never *have to* explain to themselves in L_2 what they have heard or said in L_1 in order to communicate with themselves.

This might be the case if bilingual persons stored information in linguistically associated ways and had two separate cognitive systems, one for each language, but not if we assume that they have *one* cognitive system *differentially* organized depending on which language is used to verbalize a given experience, feeling or idea.

Bilingual persons who organize the data of experience in the manner appropriate to L_1 when using L_2 would indeed have problems in understanding speakers of L_2 or in being understood by them. A given utterance would not have the same meaning for them as for a native L_2 speaker, and would therefore lead to misunderstandings and/or improper behavior (both linguistic and non-linguistic). To the request "bring me all the balls that you can find in the closet" and "*apporte-moi toutes les balles que tu pourras trouver dans le placard*" (which are considered translation equivalents) persons who speak both English and French like a native (and hence function cognitively in a manner alternately appropriate to English and French) will bring back a different set of objects. To the French command, they will bring back tennis balls, hand balls, cricket balls, and all sorts of small rubber balls; in addition, they will bring back volleyballs, basketballs and footballs when the request is formulated in English.

The French, of necessity, divide the set of more or less spheric bouncy objects used in games into two distinct classes: those small enough to hold in one hand, *les balles* [bæɪ], and the larger ones, *les ballons* [bæɪʒ]. The same kind of discrepancy would occur between morphologically and phonologically unrelated items such as *chaise* [ʒeɪ] and *fauteuil* [fotœj] with regard to the use of the English word 'chair', since an easy chair, for example, is in no way *une chaise*.

One also organizes time differently, French always viewing future events in relation to the time of the utterance (*apporte-*

moi toutes les balles que tu trouveras) while English more often adopts the point of view of the event referred to, in time and/or in space (bring me all the balls you find). There are thus a number of ways in which one may organize mental representations differently, and to that extent exhibit differences in cognitive functioning, as one conforms now to one pattern of organization, now to another. According to this view, information is not stored in linguistically associated ways, but so retrieved whenever it is verbalized (to oneself or to others). It is this mental verbalization to oneself that is generally referred to by the phrase "to think in a given language", a phrase Macnamara (1967) uses himself,¹ and then further concedes that "linguistic independence makes for smoother thought processes" (p. 736) thus acknowledging the influence of language on cognitive processes.

Bilingual persons who organize their mental representations in a manner appropriate to neither language would indeed run the risk of understanding or being understood by nobody. A given utterance would not have the same meaning for them as for native speakers, and this in both languages. To the extent that their semantic system is compound, they will exhibit bidirectional interference and behave inappropriately in both languages.

On the other hand, to the extent that bilingual persons use both languages like native speakers, they do indeed function cognitively in accordance with each language. They have a choice of organizing their mental representations in two different ways in a manner reminiscent of the visual perception of ambiguous figures (Fig. 2).

Far from being handicapped as Macnamara (1970) would suggest, the bilingual person on the contrary possesses greater "cognitive plasticity" (Bain, 1974) or greater "cognitive flexibility" (Albert and Obler, 1978), which would explain the superior performance not only on metalinguistic tasks (Cummins, 1978) and on verbal intelligence tests (Lambert and Tucker, 1972) but also in divergent thinking tasks (Landry, 1974), on concept formation and general reasoning tests (Cummins and Gulutsan, 1974) and in the discovery of underlying rules in the resolution of problems (Bain, 1974).

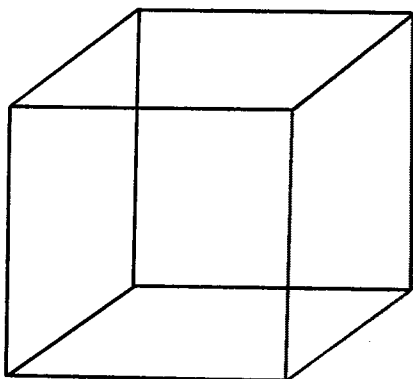
One need not adhere to the view that "language constitutes or creates intelligence" (Macnamara, 1970:34) in order to explain some possible influence of bilingualism on various linguistically related as well as non-linguistic cognitive functions.

Piaget (1968:79) acknowledges that though intelligence precedes language phylogenetically as well as ontogenetically, and though language proceeds from a partly structured intelligence, it remains evident that language structures thought in return.

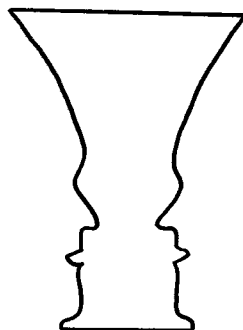


Depending on the point of view, the picture represents the left profile of a young woman, three quarters from behind, or the portrait of an old woman, three quarters from in front. The ear of the former is the left eye of the latter, the left eye-lashes of the first form the right eye-lashes of the second, the jaw of the young woman is the nose of the old woman, the neck ribbon of the former serves as the latter's mouth.

Hill's (1915) "Wife and Mother-in-Law" (after Boring, 1930).



Cube that can be perceived as projecting forward towards the upper right (exposing the side underneath its base, its outer side) or towards the lower left (exposing the upper, inner side of its base).



Depending on the direction of one's attention, this figure is perceived as a vase or as two profiles facing each other.

Likewise, to the extent that they have native competence in both languages, bilingual persons are able to organize their mental representations now in accordance with the patterns of L_1 , now in accordance with those of L_2 , thus having more ways of sorting out the same data of experience.

Fig. 2. Ambiguous figures

No one ever claimed that language has an influence on *all* cognitive processes. However most anthropologists, psychologists and applied linguists admit implicitly or explicitly that to some extent language conditions people's thinking (Hymes, 1970:43), that thought is influenced by language (Di Pietro, 1970:44) because languages slice up reality in different ways (Mackey, 1970:42), or, as Martinet (1974:228) puts it, languages segment the world in a certain way.

Schwarcz (1966) outlines five stages in the cognitive and linguistic development of the child, showing how the influence of the semantic and syntactic structure of language on the structure of the conceptual network varies in accordance with each stage of development,² and concludes that the perceptual and conceptual habits acquired by the speaker before the acquisition of the full set of transformations available in the language (i.e. all the quasi-synonymous expressions and constructions) will likely persist throughout adult life, unless new experiences [such as the learning of a second language] force them to change.

The purpose of this paper is not to defend Whorf's hypothesis but simply to show that it cannot be dismissed by the argument from bilingualism. This paper, however, does intend to show that the hypothesis of a level of non-linguistic representations differentially connected to each language explains how bilingual persons have more ways to pattern parts of their cognitive systems, thus indicating how different languages might lead them to act, feel, and sometimes reason³ differently while making use of the same cognitive system. Bilingual persons handle translation equivalents the way unilingual persons handle quasi-synonymous constructions, and there is thus no grounds for invoking linguistic schizophrenia as suggested by Jakobovits (1971:168).

To sum up, bilingual persons who speak both languages like natives need not find themselves in any predicament: they may function cognitively differentially without any ill consequences. On the contrary, it is likely to enrich their general mental capacities by giving them more ways to organize their mental representations.

NOTES

¹ Macnamara (1967:731) refers to subjects who do not "think" in Latin as opposed to other subjects "who could clearly 'think in' Irish and in English". Most bilingual persons report "thinking" in one or the other of their languages, or in both, a phenomenon taken for granted by many authors (Young and Saegert, 1966:161; Young and Navar, 1968:111; Weinreich, 1968: 675; Lambert and Tucker, 1973:89; Colletta, 1975:36; Diller,

1978:37; Gallardo, 1978:30). Some aphasic patients complain of not being able to think in one of their languages (Pick, 1923; Wald, 1961).

When Chlenov (1948:788) refers to the fact that some individuals who are not yet as fluent in the second language as in their mother tongue "will be forced to speak one language and think in another", he means that the second language is not encoded or decoded without prior translation. According to him "it is comparatively rare to find real polyglots whose speech and *thoughts* are equally fluent in all the languages they possess" (*ibid.*, 787). That is also what Wald (1961:166) meant when he said that "a person normally thinks in his mother tongue and other languages are for the most part translated". Only when the individual has progressed so far in his knowledge of his foreign language that he is able to think in it (Leischner, 1948:733; Wald, 1961:167) can he verbalize his thought directly in that language without translation.

- ² In the course of the first stage, the child learns to recognize certain combinations of elementary perceptual units as constituting elementary meaningful units (see also Bloom, 1970, 1973). In the course of the second stage, the child learns referential associations between elementary syntactic and semantic units and the conceptual elementary units. The capacity to classify and discriminate between the various perceptual structures is then largely controlled by the need to learn to respond differentially. The differences within the referential categories conventionally imposed by the various languages influence the course of the development of the perceptual discriminations in the child.

In the course of the third stage, which is that of the acquisition of syntax at a rudimentary level, the ordered combinations of words perceived in conjunction with the perception of certain combinations of their referents not only causes the learning of the ordered combinations themselves (the syntactic structures) but draws the child's attention to the fact that their referents present themselves in combination. Thus, at this stage, the syntactic constructions of the language influence the kind of conceptual relations upon which the child learns to concentrate his attention.

In the course of the fourth stage, the positions in which new words are learned in context [a feature which varies between languages] will have a determining effect on the conceptual representations of the referents associated with those words, since those words will be interpreted as being of the same structural type as the referents associated with elements previously encountered in that position in the sentence (see also Brown, 1957).

In the course of the fifth stage, the child learns the semantic equivalences that exist between many types of linguistic structure, which results in a reduction of the constraints imposed by language on the organization of concepts.

- ³ David Hume, for instance, in his *Enquiry Concerning Human Understanding*, while developing a thoroughly deterministic system in which he declares that "we feel, that our actions are subject to our will, on most occasions; and imagine we feel, that the will itself is subject to nothing..." (Section VIII, part 1, 72, note 1), nevertheless retains the notion of "legitimate pride". Had he cast his thoughts in French, it might have been easier for him to conceive of both *orgueil* (excessive pride) AND *fierté* (legitimate pride) as being illegitimate. It requires an extra mental effort to recognize that something called "legitimate" pride is illegitimate. A number of cognitive skills such as basic arithmetical operations do vary with the language/culture. Insofar as language is used as symbols to practice these operations, processes will differ in accordance with the language/culture in which they were acquired, for example doing multiplication by successive additions or by applying the multiplication table. On the other hand language is unlikely to have an effect on some cognitive functions such as face recognition (although even here, Whitaker [1971:247] remarks that stimuli which have been verbally identified are more stable than those which have not been).

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APPLIED LINGUISTICS AND ESL APPROACHES TO WRITING

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The teaching of writing in English as a Second Language (ESL) is dominated by one approach, 'controlled writing', the written analogue of pattern practice. What other choices are available? How do they relate to applied linguistics? How does linguistic theory relate to educational practice? I will look at various ESL approaches to writing which have been, or may be, used and then give two accounts of these approaches: an applied linguistics account and a curriculum account. Each approach will be represented by a typical writing activity, and this will usually involve the genre of classification, for easier comparison. Following this will appear a rationale for the approach based on the ideas of its proponents.

(1) Traditional approach (Prose composition in liberal education)

(a) Literary/cultural aim dominant. 'Imitation' method

Activity: Given a model passage from a great author, transcribe and memorize it, do exercises of structural and stylistic variation with it, and write an 'imitation' of it, aiming at producing something as good as the original without hiding one's individuality. Rationale: Learning grammar and style of L2 and literary technique is a means to appreciate the literature of L2 (and thereby the 'high culture' of L2).

(b) Linguistic mental discipline aim dominant. Grammar-translation method

Activity: Given a selected passage, translate it into L2. Rationale: This develops the student's linguistic precision. The belief in the mental discipline of analytical language study was founded on the view that an awareness of general grammar was basic in the formation of the intellect, which derived from the classical claim that grammar was the foundation of all knowledge or from the belief of the Age of Reason that grammar was dependent on logic (cf. Kelly 1969, Ch. 6).

(2) Models and manipulation approach (Controlled writing)

Activity: When copying the following model composition, change all present tense verbs into the present perfect form. "Eventually the whales

became separated into three groups: the plankton eaters, the fish eaters and the squid eaters. The plankton-eating whales can exist only where" Rationale: The student can master composition in English by the process of copying, imitation and repetition. The task and rationale follow Bander (1971). The approach is very familiar within ESL teaching. The term 'controlled writing' points to the goal of error-free performances. 'Models and manipulation' brings out the relation with the techniques of the 'imitation' method and with the oral-aural technique of memorizing model dialogues and manipulating parts of them in drills.

(3) Cognitive approach

The example and rationale follow Lawrence (1972). Activity: a) Add to the following list of means of communication. 1. telephone 2. teletype 3. drum 4. newspaper b) Arrange into categories according to different ways of classification (e.g. by efficiency). c) Write a paragraph about communication using one method of classification. Rationale: Writing is a thinking process. Emphasize going beyond the information given, going beyond rote-learning to higher-level learning (problem-solving), by using an enquiry method in which students ask questions, manipulate data and extrapolate from data.

(4) Expressive approach

(a) Language experience technique

Activity: Following their interests, the student interviews a guest speaker about his typical day's activities. Then the teacher conducts a group discussion, writing notes on the board. Using these notes, the teacher elicits a group composition, posing questions which guide the students to sort the activities into some categories (e.g. work, relaxation) and which thus give a classification structure to the composition, and writes up the resultant composition on the board.

(b) Creative writing technique (typically used in L1 teaching)

Activity: The students are presented with a 'stimulus' (e.g. a picture, a film-loop, music, a dramatic incident, or an experience like feeling snow but usually not another piece of writing) and are invited to express their personal reactions in writing. It is not the aim to give an accurate objective description of the stimulus: this is meant as a point of departure rather than a terminus; and the

teacher's role is not that of a marker but rather that of a receptive and encouraging coach.

While these two techniques are part of the same general approach, they have important differences: language experience aims to start from what the students are already interested in, discussing the writing is a group effort and the teacher plays an active role in shaping the final product by questioning; with creative writing, it is hoped that well-chosen stimuli will catch the students' interest and motivate them to express themselves: the writing is individual and the teacher is not directly involved in it. Rationale: Writing is a matter of personal growth through self-expression. Attend to student-centered education, learning rather than teaching, the processes of interaction through which learners acquire expressiveness in language, the teacher's obligation to guide and foster this development. Expressive language (whether in speech or writing) is a function of the relationship of trust existing between the communicating parties. Whenever a frontier is reached and our thinking becomes tentative, a return to expressive language with someone 'in the context' and someone we trust is either necessary or likely to be very profitable (after Squire & Britton 1975).

(5)

Social approach

(a) English for Specific Purposes (after Allen & Widdowson 1974)

Activity: (i) Join these three sentences into one, using the words in capitals.

INTO/A NUMBER OF DIFFERENT/,/OF WHICH

Compounds can be divided;

There are various classes of compounds;

The most important classes are acids, bases and salts. (ii) Write a paragraph using the

following notes. Compounds-divided-acids-bases-salts. (iii) Read the model. Compounds can be divided into a number of different classes, the most important of which are acids, bases and salts. Rationale: By contrast with general-

ist English courses, English for Specific Purposes aims to relate the writing task to the specific requirements of a particular area of language use in the speech community that the learner will need, e.g. English as it is used in Physical Science.

(b) Naturalistic

Activity: Student writes instructions for classmates for a simple experiment, e.g. "Your experimenters will be able to observe finely crushed pieces of granite under a microscope and to sort them with a needle. Write instructions so that they can identify and sort the different types of grains (feldspar, quartz, mica, hornblende) into separate piles."

Rationale: Composition should be a communicative act. Students have been prevented from practising language in authentic ways. They must have authentic audience and have some communicative goal that for practical reasons demands writing. (Rationale follows Moffett and Wagner 1976.)

(c) Consciousness-raising: Freire

Activity: Students discuss their rights and how to claim them, and, if necessary, how to claim them in writing (e.g. filling out claim forms). "Discuss the following passage titled 'My Job': '... We have three breaks during the shift. The morning coffee break is at 10:15. There is another coffee break at 3:00. We have half an hour for lunch.'"

In one class, discussion centered on one student who always ate his lunch standing at his machine. Because the teacher pointed out the regulation about a half-hour break after five hours work, this student realized that his situation could be changed, claimed his rights and began taking his lunch break. (After Ciancone, Serio, Unda 1979).

The topic 'My Job' would be chosen after a careful survey of the learners' community to identify important themes, and would typically be introduced by a picture designed to provoke discussion. The discussion coordinator both listens to individuals and challenges them by problem-posing questions, and may write up the discussion using the language experience technique.

Rationale: Literacy is not seen as a mechanical skill, but rather as related to awakening the learners' critical consciousness of their social reality and awakening them to critical action so that they can intervene in their social situation. Writing is not a true human act implying reflection and action if it is not associated with the right of self-expression and world-expression, of participating in

society's historical process. Further, in learning to write, the learner must be a creative subject, reflecting critically on the process of writing itself (cf. Freire 1973).

Two contrasting accounts of the various approaches can be given: an applied linguistics account and a curriculum analysis account. They will be considered in turn.

Diller (1978, pg. 8) gives an admirably forthright statement of a widely held applied linguistics position: "We have two major traditions of language teaching, based on two different views of language and language acquisition. Decisions on language teaching methodology have not been primarily the result of practical and disinterested experimentation: they have been decisions based instead on differing theories of language Language teaching methods are manifestations of linguistic pre-suppositions, and for the most part are variations on two themes - the empiricist and rationalist theories of language learning." The specific difference in the classroom will be between mechanical drill and meaningful practice: "When language is thought to be a set of conditioned habits imposed from the outside, a large amount of mechanical drill is in order. But when language is seen to be a symbol system for use in expressing our thoughts, then meaningful practice is in order ..." (ibid., pg. 146). Since approaches to writing are specific cases of language teaching methods, it follows that the same difference should be observable in the teaching of writing.

It is obvious that whatever else can be said about this position it is not adequate for the task at hand. There are more than two distinct approaches to writing; the position does not discriminate finely enough. It is therefore better to consider the position as it applies to the two approaches that fit it best: the models approach illustrated by Bander and the cognitive approach of Lawrence.

Even here Diller's mechanical drill/meaningful practice distinction is of limited value. 'Meaningful practice' would certainly seem to apply more appropriately to Lawrence rather than Bander, but it does little to illuminate Lawrence's approach. It does not suggest the principles behind a discovery or enquiry approach. To see the contrast between the two approaches, consider that Bander typically has the student memorize the model paragraph, then copy it making inconsequential grammatical changes, then imitate its form by writing an original paragraph with the same classification structure. The student copies, repeats and imitates the model. Lawrence, however, provides no models. The idea of classification structure is presented through exercises in which the student organizes a list of items into a classification and then expresses that classification in writing. Bander, stressing imitation and repetition, assumes a behaviourist view of teaching and learning. Lawrence takes a cognitive view. However the crucial behaviourist-cognitive difference that is at issue in the contrast between them is: the

behaviourist concentrates on overt behaviour only; the cognitivist stresses the importance of mental processes underlying behaviour. This accounts for the difference in writing activities. Bander's models are sequences of overt behaviour. The student is put through the sequence as he copies the model and as he manipulates the model in insignificant ways. Lawrence assumes that the student has the concept of classification, provides him with data (a list) and asks him to classify it. That is, given data and having a concept, the student goes through the mental process of imposing the concept on the data and produces the overt behaviour - a sequence of sentences. Bander's student copies the overt behaviour; Lawrence's student generates the overt behaviour. Diller's contrast between mechanical drill and meaningful practice is a result of this deeper contrast. Copying overt behaviour leads to mechanical drill.

It is worth noting, too, that Lawrence's method deliberately isolates and foregrounds separate parts of the writing process. Lawrence follows the emphasis that the cognitive psychologist and educationist Bruner places on the fundamental principles, the formal structure, of subject matter and concentrates on a group of essentially content-independent thinking processes (e.g. classification) which are applicable to a wide variety of data. Each of her exercises provides the student with carefully selected data which lends itself to a specific thinking process. This allows various components of the complex task of writing to be isolated and worked on separately, analytically and even consciously. In this way the fundamental structure of the task of writing will be seen most clearly by the student, who will then be more able to transfer the processes to new and unfamiliar data in normal everyday writing in the course of his work.

Thus the contrast between the models and manipulation approach and the cognitive 'writing as thinking' approach is a clear instance of the contrast between mechanical drill and meaningful practice that Diller describes. However, it is clear that for Diller the concept of meaningful practice also includes the activities of the community language learning approach which uses the expressive or language experience approach. Does this mean that the cognitive approach and the expressive approach are essentially the same? On the contrary, they involve very different activities. The cognitive approach calls for intellectual, analytic exercises in cognitive problem-solving; the expressive approach looks for engagement of the whole person in self-expression. The first starts from data and a problem set by the teacher and is to that extent teacher directed; the second starts from the student's expression and is to that extent student-led. For the first, 'meaningful practice' implies the contrast between thinking about problems rather than repeating by rote; for the second, it implies the contrast between personal engagement and relevance to the individual versus what is external, extrinsic and unimportant to the individual's purposes.

If Diller had looked at language teaching methodology from

the standpoint of theories of learning rather than theories of language learning, the three-way contrast might have been more apparent. It is now commonplace for introductory textbooks in educational psychology, for example, to make a triple distinction between behaviourist, cognitive and humanistic views of learning, between Skinner, Bruner and Carl Rogers. The expressive approach to writing fits well with the Rogerian view. Rogers' position is that the teacher should be student-centered and should aim to release the learner's capacity to deal constructively with his life situation by the creation of an atmosphere of understanding, acceptance and respect. He is against 'meaningless learning' which does not involve feelings or personal meanings, and is for 'significant learning' which is self-initiated and relevant to the learner. From this it follows that the language teacher should promote the students' self-expressive activities in language: expressions by the self, i.e. activities which are self-initiated; expressions of the self and its purposes, i.e. activities which are personally meaningful; and expressions about the self, i.e. evidence of the learners' constructive capacities. Interestingly enough, these language goals are goals not only for the Rogerian language teacher but also for the therapist working in client-centered Rogerian psychotherapy. Self-expression by the 'client' is a necessary condition for Rogerian work.

Diller's account, then, views language teaching methods as reflections of different theories of language learning. While it is a helpful account, it is neither as illuminating nor as comprehensive as might at first appear. The underlying questions that Diller is raising about any language teaching method are: Is it fully consistent with the most valid linguistic theory of language learning? Is it the most efficient way of producing language learning? I will now present an alternative account of approaches to writing, as reflections of different orientations to curriculum which conflict in priorities concerning what should be taught, how and why, thus raising questions of value and appropriateness rather than theoretical correctness and technical efficiency. The curriculum orientations are: curriculum as technology, as cognitive processes, as self-actualization, as tradition, and as social relevance (cf. Saylor and Alexander 1974, Eisner and Vallance 1974, McNeil 1977).

Curriculum as technology/models

Aiming towards a technology of instruction, this orientation seeks the most efficient means to a set of predefined, nonproblematic ends which are usually the conventional curriculum goals. It reduces curricular goals to detailed, specific and behaviourally oriented objectives, plans learning activities to achieve each objective and checks the learners' performance against the objective, hoping for a specific, sequential, and demonstrable series of learnings, incremental rather than holistic. Learning is assumed to be the controllable and predictable result of the presentation of the material more than the activity of the learner. The models approach similarly relies on materials,

provides incremental and demonstrable objectives and aims for external control of the learners' activities leading to correct responses.

Curriculum as cognitive processes and the cognitive approach

The aim of this orientation is to develop a set of cognitive skills that can be applied universally and that will result in maximum transfer, e.g. it is preferred to develop a familiarity with scientific methods rather than to learn by rote scientific facts, to promote process rather than content. Accordingly, there is strong interest in the activity of the learner and in the process of learning and inquiry seen as extending beyond the course to future situations. Thus in Lawrence's cognitive approach the writing task is seen as a family of thinking processes. The skill of classification is more important than the data on which it is performed, and classification is presented as a process to be engaged in rather than a pattern illustrated.

Curriculum as self-actualization and the self-expressive approach

Aiming for the personal growth and autonomy of the self-actualizing person, this orientation plans to provide the learner with experiences that develop personal liberation and that are intrinsically rewarding. (Contrast the more extrinsic outlook of the technological and cognitive orientations.) Unlike the technological orientation, it is student-centered, and goals are expected to arise more from the students' experiences and developing autonomy, and the community of learners, than from prior determination by the teacher. Development of attitudes, emotions and values is important as well as the intellect. The expressive approach is similarly student-centered and begins in personal engagement. Self-expression offers a way of learning more about the self and developing one's own goals.

Curriculum as tradition and the traditional approach

Here the purpose of the curriculum is to transmit the content of the cultural heritage (the best that has been said and done, the classic products of civilization that have stood the test of time, the perennial issues and themes), in order to acculturate or socialize the students in the perspectives of tradition, so as to provide a shared and comprehensive vision. Cultural heritage should be understood to include the academic disciplines as sub-cultures. The cultural content is assumed to be universally valid, to be valuable in itself, to be approached on its own terms. How it might be related to the learner's developing understanding, or to local concerns, is not of particular interest, for this would require a departure from the systematic and economical order of the content. In the traditional writing approach, literature supplies the cultural heritage and grammar the academic discipline. The literary or other content acculturates the student, and the grammar gives a fine orderliness to the structure of the course and provides a universal and general form of knowledge. The literary content is not of contemporary relevance to the student, and the arrangement

of the grammar is not related to the language development of the learner.

Curriculum as social relevance and social approaches

For this orientation the role of the curriculum is to be socially relevant, to relate learning to social understanding and social activity (cf. social studies and citizenship training). Aiming to develop man in society and society in man, it is often organized around a series of social activities or social problems. This orientation has two variants, which interpret social relevance in different ways. The adaptive or conformist variant teaches the student to adjust or conform to the existing society, to understand the dominant social perspective and/or to survive or function within the society. The reformist variant sees the learner as a potential social critic and social actor, reforming society rather than conforming to it. Consequently, it helps students to develop critical consciousness of their social situation and to plan and effect social change.

All of the social approaches to writing relate language work to specific speech communities, to particular areas of language use in society, hoping to develop the student's understanding of the sociolinguistic setting and/or his ability to participate in social language activity. English for Specific Purposes, like the adaptive variant, teaches the student to conform, e.g. to the specific writing requirements of the speech community of physicists so that he can participate in that language activity. Its focus is the social activity of writing a physics essay. The naturalistic approach recognizes the classroom as a social microcosm, as a speech community, and organizes it so that learners have maximum opportunity to engage in writing tasks with and for that speech community as both target and resource, and through social dialogue develop the ability to produce social monologue. In a sense, the learner adapts to this community as a writer and reforms it as an editor. Freire's approach is the reformist variant. The student develops awareness of the realities and legalities of the workplace and the ability to change the work situation by taking action in speech and writing. Its focus is a social problem: rest periods in the workplace.

What do these two contrasting accounts suggest about the role of applied linguistics, about the relation of linguistic theory to educational practice? Diller sees a very direct and simple relation: linguistic theories are the main, if not the sole, determinant of decisions on language teaching methodology. In broader terms, valuative and normative issues of social policy and practice should be decided solely by reference to the theories of the social sciences. 'Ought' will be decided by 'is'.

The curricular account shows the limitations of this view. Diller's position makes the same assumptions as 'curriculum as technology': agreement on goals is presumed, and one is left with the technical question of identifying the most efficient means or method. But the different approaches to writing manifest different views of what writing is and project distinctively different

goals for language teaching. Methods and goals are not separable. Choosing between goals (and methods) raises wide-ranging issues of values which linguistics, being a theoretical science, cannot resolve. The curricular account relates approaches to writing to other areas of teaching via a broad educational perspective. Consequently the practical issues in the teaching of writing can be seen more clearly (e.g. how should one conceive of the process of writing, from an inquiry or discovery point of view?), and it begins to be possible to see an important role for linguistic intelligence applied to these problems. Diller's position tends to reduce applied linguistics problems to problems of finding examples from language teaching to match linguistic theories. There is therefore little interest in looking closely at methods beyond this need.

To sum up, either approaches to writing can be viewed as reflections of linguistic theory or, alternatively, linguistic intelligence (to include not only theory but also sharpened perceptiveness about language) can be used to illuminate problems of writing practices. I favour the second.

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VI

SPEECH ACT,
DISCOURSE ANALYSIS

LINGUISTIC FORMS AND SOCIAL FRAMES IN INTERPRETATION

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Language is internally structured on several grammatical levels, and it is pragmatically organized at certain levels of communicative function. But the interpretation of actual utterances is a situated accomplishment, depending crucially on several kinds of contexts. Given, then, that speech is both structured and situated, a central problem for any theory of utterance interpretation is to determine how grammatical knowledge interacts with participants' interpretive procedures for arriving at mutual understanding. The central questions of concern here are: how do participants use linguistic forms in social scenes as units of interpretation in organizing their conversation and other concerted activities; what range of contexts determine the interpretation of talk; and how can these contexts be described and validated as the participants' own categories? Formal linguistic theories attempt to describe and explain abstract systems of signs and structures; they do not address the wider problem of utterance interpretation. One reason for this is that there has been no theory of the context in terms of which talk is interpreted. My central goal here is to offer criteria for describing the linguistic and kinesic contexts which manifest what speakers view themselves as doing socially while they are talking.

In order to do this, I will (1) analyze a few utterances from a first-grade reading lesson on several linguistic levels, illustrating that neither formal nor functional approaches are adequate to address the problem of utterance interpretation; (2) offer criteria for a kinesic analysis of gestures and body orientations of participants as these constitute signals of their social contexts; and (3) show both how utterances are interpreted in light of these contexts and how utterances help to create contexts. In doing this I will focus especially on an utterance type I call a PRAGMATIC COUNTERFACTUAL, since it reveals quite clearly the efficacy of an interactional account.

The data are given in Table I: these are an eight-second segment of videotaped interaction among six first-grade children and their teacher, while sitting around a table during a reading lesson. Prior to this excerpt the teacher left the table momentarily, saying:

Table 1. An 8-second transcript of an extended conversational sequence during a "getting-a-turn-to-read" positioning. The conversational act type and interactional consequence is coded for each utterance; reading across columns from left to right.

ONSET TIME	SPEAKER	TURN	UTTERANCE	CONVERSATIONAL ACT	INTERACTIONAL CONSEQUENCE
1.0	Teacher	1	Alright, Perry's ready. Who else is ready?	Boundary Marker Description Product Question	-shift group focus -nominate reader? -solicit participation
					PROPOSITIONALLY AMBIGUOUS -to read next -to call for a turn -to read along -to read in chorus
3.8	Anna	2	Me.	Product Answer	-commitment to read
4.2	Jimmy	3	Not me.	Product Answer	-refusal to read
4.4	Perry	4	CA-	Compliance	-reading
4.6	Maria	5	Can I go?	Permission Request	-solicit turn
4.6.	Rosa	6	YOU:::	?Compliance	-mock-reading
6.0	Perry	7	CAN-	Compliance	-reading
6.8	Rosa	8	I could read it.		-pragmatic counterfactual ILLOCUTIONARILY EQUIVOCAL -Answer -Internal Report -Explanation -Indirect Permision Request

'Alright, let's read it to ourselves, and then raise your hand if you can read it!' Rosa immediately said she could read it, but her remark received no verbal uptake; then Perry said he was ready and the teacher acknowledged his remark; finally, Perry emphatically repeated that he was ready twice.

This background information sets up a potential discourse topic, or 'the question of immediate concern' which the participants must deal with. The discourse topic on the floor in this instance is something like 'Perry has the next turn to read'. Not only Perry's repetitions of his claim to readiness and the teacher's acknowledgment contribute to this potential reality, but in the teacher's initial turn at talk in the excerpt she reports Perry's readiness to read to the group; so, her 'Perry's ready' could mean the discourse topic that 'Perry is ready to read next.' Negotiating the actuality of this topic dominates the interaction to follow.

Linguistic analyses include lexical, propositional, illocutionary, sequential and transactional levels. For example, consider the pair of utterances in turns 1 and 2: 'who else is ready' and 'me'. They reflect the lexical relation between the interrogative pronoun 'who' and the personal pronoun 'me' which share semantic features like [+person]. The first utterance can be viewed as containing the underlying proposition 'someone be ready'; and this can be analyzed as the presupposed proposition, while something like 'identify someone' is analyzed as the focus of the utterance. The 'me' of the following utterance then elliptically represents the proposition 'I be ready'. The illocutionary status of the two utterances is question and answer. An utterance is illocutionarily designated as a question on the basis of its form (i.e., lexical items, order of lexical items, prosodic contours) and its function (the solicitation of information); an answer can derive its status only from an illocutionary relation to a prior question. The two utterances then constitute a conversational sequence in that they are related by virtue of the questioner's intent to convey that she expects an answer and the answerer's fulfillment of that expectation. Finally, one transactional consequence of such a sequence could be to commit the respondent to performing some future action - taking the turn to read, in this case.

In terms of propositional analysis, the teacher's description "Perry's ready" in turn 1 labels a person and a state, while the proposition of her interrogative 'who else is ready?' seeks the identification of other persons in the same state. Anna's answer in turn 2, 'me', identifies a person, herself, equivalent to the proposition 'Anna be ready'. Also, Jimmy's 'not me'

expresses the equivalent of 'Jimmy not ready'. In short, there is a tight semantic fit among the class of names and pronouns 'Perry, who else, me, not me'; there is a high degree of topical cohesion in Halliday and Hasan's sense (1976), among the four propositions of readiness.

These forms, however, are multiply ambiguous. 'Perry's ready' and 'who else is ready' are elliptical for 'Perry (who else) is ready to verb', where the blank is to be filled in by some verb, according to the grammar of English. Which verb, exactly, cannot be determined on grammatical grounds. So this is the first point at which appeal must be made to the interactional context, namely that these participants are in a reading lesson. The missing verb then could be 'read' (as is partly reflected later in Rosa's 'I could read it' in turn 8). But, unfortunately, this does not alleviate the ambiguity of these forms.

This group is not only involved in a reading lesson, but also in the more immediate context of deciding who is to read next. And there are several ways in which this group allocates turns. Thus, the teacher's remarks could express any of the following propositions: 'Perry (who else) is ready...

1. to read next,
2. to call for a turn to read next,
3. to read along silently with the designated reader, or
4. to read together in chorus.'

The teacher might intend a mixed combination like 'P is ready to read next, who else is ready to read along?'; but since she doesn't say it, it's negotiable; i.e. the agent and the allocating mechanism for next turn are open to negotiation. A positive answer, such as Anna's 'me' in turn 2, could commit her to any of the actions ambiguously implied; but Jimmy's negative 'not me', although he is in the interaction by answering, disengages him from any responsibility to read.

Rosa's 'I could read it', in turn 8, has several formal relations to the teacher's turn. The 'I' continues the semantic domain of personal pronouns. Her main verb 'read' could manifest the elliptical verb of the teacher's question. But most interestingly, her modal verb 'could' is ambiguous: it could state her ability, as in 'I am able to read it', or the hypothetical 'I could read it if...(say)...I got the turn. The underlying proposition, 'Rosa read', introduces a potential 'propositional-topic' which could be taken to compete with the 'Perry read' which might be on the table.

To begin the illocutionary analysis, each utterance is scored according to its type of conversational act; the taxonomy of acts we use include assertive, requestive, responsive and regulative act types. This

taxonomy is meant to reflect only one level of illocutionary act, the level at which conventional act types are most explicitly manifested by grammatical form. Thus, for example, it is formulated above the level of delicacy which would distinguish among subtypes such as descriptions of objects, events, properties, etc., and below the level which would distinguish among acts like jokes, insults, complaints, etc. This level is also useful for sequential analysis; that is, for analyzing how utterances across speakers form minimal sequences of conversation.

One problem here is the equivocality of the teacher's 'who else is ready?' Although it appears to be a straightforward product question, it could be taken as an indirect action request 'Be ready'. Labov & Fanshel (1977) formulate a rule for hearing it as a command; and Perry takes it as one, i.e., he complies by reading. Second, if Rosa's 'I could read it' is an assertive act at all, it is either an Internal Report (of her ability) or an Explanation (on the hypothetical reading, roughly equivalent to something like 'it's a possibility I could read if...'). But it is multiply equivocal, as well as ambiguous. It could be an answer to 'who else is ready?' 'I' could answer the 'who'; 'read' fill in the elliptical verb; and 'it' could be a pronominalization for 'the next page'; and it occurs only three seconds after the question. But it could also be an Indirect Permission Request to read. We see here the central problem of illocutionary analysis: how to constrain the multiplicity of speech act functions? But I want to claim that the actual functional efficacy of this remark for the conversationalists is that it is a PRAGMATIC COUNTERFACTUAL: i.e., it is taken to mean the opposite of what it literally states. But in order to support this claim, we must have an independent characterization of the context in terms of the speakers' own categories for interpreting it. That is, formal and functional linguistic analyses yield only accounts which are propositionally ambiguous, illocutionarily equivocal and interactionally indeterminate. Knowing the context is what disambiguates meanings and functions.

Now, contextual analysis requires that any units be defined only in relation to other units. Thus a person's behavior is best described in terms of how it articulates with other persons' behaviors with whom the person is co-constructing an interaction. But, as Frake (1977) put it, people are not exactly certain of 'what is going on' at any moment of interaction. What precisely is at issue for them is an emergent phenomenon explicitly specifiable only in retrospect. What people operate with is a 'working consensus' of

what they might be doing together on several levels, in order to be able to behave appropriately in the interaction.

The participants are involved in a hierarchy of contexts: they are in a New York public school, in a lesson, and in a reading lesson in particular. The units of interaction applicable to our data are at the level of turns to read, where either one individual reads and the others follow along silently or they all read in chorus. The most important level for our contextual analysis is that of positionings because they provide the most immediate contexts for talk, i.e., they answer most directly the tacit question 'what are we doing?' Positionings are the postural configurations which the group embodies as the manifestation of what they are working out together. In this reading lesson the group exhibits three positionings: (I) Reading when they are bent over the table focussed on their books; (II) Getting a turn to read when they are up from the table and looking at the teacher or one another for cues as to who will get the next turn; (III) Waiting for the teacher to return or re-enter the group's activity. The group is in positioning II during our excerpted talk. Actions (such as hand-raising, postural shifts and turning pages) by individuals are the lower-order components of positionings; and movements (such as smiling, hand-waving, gazing and head-turning) are still lower components. Any movement and action may be constitutive of the more inclusive level of positioning. What's critical about the positioning level is that what is done is accomplished in concert.

The criteria used to establish that the description of concerted activity contexts is ethnographically adequate are the following: (1) Formulating occurs when members name, describe, sum up or in any way mention who, what, how, why, etc. things are done. Although such formulations manifest only part of 'what's up', they supply the content for what can then be ratified as social fact for the group. Also, they not only feed back upon what has occurred, but also feed forward to what might follow. For example, the teacher might call on a child, a child might complain; later, verbal formulations are likely to be abbreviated (often reduced to taps and moans in our two examples). (2) Posturing is the doing of actions together, where actions are negotiated fittings to the working consensus, based on the ongoing monitoring of others to guide one's own responses, e.g., 'in-to-the-table, down-to-the-book' for the reading posture, and 'leaning back and away, chatting,' etc. for the waiting posture. (3) Orienting to the structure in the formulated and done order can be seen in the collective responses to transition

points and breaches of that order: e.g., postural shifts occur at positioning transitions; sequences of talk differ in relation to positioning; when a child complains loudly of the teacher's selection of next reader, his action is oriented to as a breach of order. And (4) Holding Accountable is the most telling criterion for the description of concerted activity on the participants' own terms. When a breach is responded to by a call back to order, this Holding Accountable includes the above three criteria. For example, when the teacher says 'Ted, you're not looking at your words', she (a) formulates what he should be doing, (b) describes an action-part of the posture others are holding for the reading positioning, (c) orients to the member who is breaching that contextual order, and thereby (d) holds him accountable to doing it.

We can apply these criteria to Rosa's 'I could read it'. As a formulation it could refer back as an answer to the teacher's 'who else is ready?' But interactionally it formulates forward as a potential self-commitment to read. However, as either answer or commitment, it receives no verbal uptake. Superficially the remark appears to orient to the question at issue, namely, who is to read next, but its timing renders the remark inappropriate as a substantive commitment to read insofar as the group consensus has begun to form. Perry has begun to read and will in fact have the turn ten seconds later. Thus, again, Rosa merely appears to be doing the social order of getting a turn, without really intending to be heard literally.

When the talk is analyzed within the configuration of multiple activities with which it is sequenced and aligned, the contradictions in Rosa's behavior are more obvious. (1) When the teacher re-enters the group, as she scans across the students and asks her readiness question, Rosa looks away from the teacher and 'out of' the group. As others begin to respond and the teacher glances at them, only then does Rosa look at the teacher. This is one of many instances in which the teacher and Rosa organize gaze aversion at moments relevant to calling for and getting assigned a turn to read. (2) As the teacher arrives at the reading table and begins to sit down, she and Perry do a postural 'dance' together, each of their movements co-occurring with and complementing one another (e.g., their torsos turn toward each other, at the same time, then back to the group, then down to the table, etc.). This kind of well-sequenced mirroring of movements across persons has been shown to mark many interactions in which people achieve rapport and share agendas. (3) Anna and Maria watch the teacher and Perry from across the table; this is the beginning of organizing a group focus on

Perry as the designated reader with others simply following along. At the moment that Rosa begins her utterance, Maria is moving her torso forward across her book toward Perry. Maria's move, then, may be further evidence that Rosa's utterance may be made ineffectual by there being some agreement that Perry already has the turn to read. (4) Only near the end of the teacher-Perry dyadic dance does Rosa say 'I could read it', this timing further suggesting that the turn has already begun to be otherwise allocated, and thus her remark is ineffectual. (5) Rosa's utterance is virtually simultaneous with the teacher's beginning to direct a statement to Perry. This is inaudible (and thus not on the transcript), but the teacher has started to move towards Perry and to move her mouth when Rosa's loud statement commandeers the floor. The teacher responds by pulling back from Perry, orienting to Rosa and slowing adjusting her lips back to a position of silence (as if chewing the words not said). (6) As Rosa finishes speaking and the teacher begins to gaze toward her, Rosa throws herself across the table, down and away from the teacher, thereby concluding an elaborate behavioral sequence arranging an unavailability for any commitment to read, while maintaining a place in a group structured around reading tasks.

We are not alone in our interpretation of Rosa's utterance as meaning something antithetical to what a literal reading might suggest. The other members of the group also take Rosa's utterance to mean that she is not going to read. Indeed, much of the confusion that the group members were experiencing about what the teacher could possibly have been calling on them to do with her opening remarks begins to get resolved at the point of Rosa's utterance. It is as if Rosa's calling for a turn to read confirms the collective suspicion that Perry has already been assigned the turn.

In addition to the above "on scene" evidence, there are other facts supporting the same analysis. Although this group was observed for the entire school year and other reading lessons were analyzed, Rosa was never observed to actually read, though she often mimicked lines previously read by others (just as she mimics a read line during the above excerpt). In fact, she was rarely observed even to get a turn at reading. She often declared her ability to read, but rarely received up-take. This persistent negative feedback in the context of a classroom in which children are asked to compete with each other in the acquisition of literacy skills suggests that Rosa's utterances about her reading are treated differently from both others' remarks to that

effect and Rosa's remarks to other effects. In sum, when Rosa says "I could read it", others react as if she means that she will not read it and that they should continue as if someone else was going to read. The members of this group use this information not just to manage their relations with Rosa, but also to organize their behavior across the whole group. Rosa's utterance is not only a (false) statement about her ability, but a tool members use to formulate and accomplish their concerted activity.

In conclusion, if we consider Rosa's utterance, its truth would be determinable by empirical tests of her graphic decoding skills. The members could have relied on their memories for evidence of this, but this option was not taken. Its truth did not become an issue for the conversationalists. Its meaning, moreover, appears to be quite straightforward. Its reference to a specific person and activity is quite clear and its sense, in certain terms, is unavoidable to hearers. But, as we have seen, it has more than one sense. What is more at issue than its truth or meaning is whether it can be used to construct the next step in what the members of the group are doing together. As such, any theory proposing an interpretation of this utterance must appeal to social structure. A sensitivity to linguistic form is essential, but is not a sufficient condition for analyses which must parcel out meaning by specifying the environment in terms of which utterances are sequentially relevant to each other and simultaneous to whatever members are doing together. Thus, the issue is not whether Rosa's statement is true, or what its specific propositional meaning is, but whether the circumstances of her utterance render it useful in solving the organizational problems facing the participants in this reading task.

The efficacy of Rosa's remark has been shown to be illocutionarily equivocal. But on another level of utterance function, it provides the appearance of her ability to read, her involvement in the lesson and her willingness to take the turn, while at the same time its timing and other relations to the social context render it ineffectual as a candidate for a bid to read. One implication of this kind of analysis is that a primary pragmatic function of talk may be to project alternative realities and to eliminate momentarily those realities that do not map onto the flow of concerted activity. In this case, Rosa projects a potential reality, both personally that she can read and interpersonally that she might get the turn; the group's reaction eliminates the interpersonal possibility. In other words, grammatically well-formed and meaningful talk can be used to suggest certain states of affairs which,

even if not true, can become the group's reality. For this group it is sometimes handy for members to act as if Rosa can read. One fundamental function of talk here, then, is to sustain unrealities or to avoid realities.

In order to sort out the levels of function and the actual efficacy of talk, interactional approaches emphasize the need for fine-grained behavioral descriptions of what talk means in different situations. The basic principle of the approach used here is that the person's behavior is best described in terms of the behavior of those immediately about that person, those with whom the person is doing interactional work in the construction of recognizable social scenes. Analyses of talk based on internal phenomena such as illocutionary intentions, shared beliefs and rule systems may be necessary for cognitive accounts, but they cannot explain the structure of activities any more than can analyses of decontextualized behaviors as defined within behaviorist stimulus-response paradigms. Both mind and behavior have to be understood in terms of the communicative arenas in which they are organized and displayed.

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THE PRAGMATICS OF "BECAUSE"

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In this paper I shall look at the causal conjunction "because", showing how it can be used to express two different types of conjunctive relation and how this distinction is reflected in the grammar of English. I will provide further evidence for this distinction from several other languages. Finally, I will propose a framework to account for these distinctions. This framework will support the view that the wider discourse environment of a sentence is relevant to the interpretation of intra-sentential phenomena (Longacre 1979).

Let us consider the following pair of sentences:

- (1a) He went home, because he felt ill.
- (1b) He went home, because he's not here anymore.

The sentence parts preceded by "because" have been referred to as reason adverbials or adverbial clauses of cause. There are a number of linguistic facts which suggest that they behave differently in (1a) and (1b) (Rutherford 1970; Quirk, Greenbaum, Leech and Svartvik 1972):

- (I) The reason adverbial can be the focus of alternative interrogation, alternative negation, cleft sentence in
 - (1a) but not in (1b):
 - (2a) Did he go home because he felt ill or because it was getting late?
 - (2b) *Did he go home because he's not here anymore or because I saw him driving off?
 - (3a) He didn't go home because it was getting late but because he felt ill.
 - (3b) *He didn't go home because I saw him driving off but because he's not here anymore.
 - (4a) It's because he felt ill that he went home.
 - (4b) *It's because he's not here anymore that he went home.
- (II) Yes/no questions apply to the whole of (1a) but only to the main clause of (1b):
 - (5a) Did he go home because he felt ill?
 - (5b) *Did he go home because he's not here anymore?
 - (5b') Did he go home? because he's not here anymore.
- (III) (1a) can occur within factive nominals, but not (1b):
 - (6a) His going home because he felt ill is unfortunate.
 - (6b) *His going home because he's not here anymore is unfortunate.

- (IV) Two reason adverbials can be conjoined only if they are both of type (1a), otherwise type (1b) must be subordinated to type (1a):
 (7a) He went home because he felt ill and because it was getting late.
 (7b)? He went home because he's not here anymore and because I saw him driving away.
 (8) *He went home because he felt ill and because he's not here anymore.
 (9) He went home because he felt ill, because he's not here anymore.
- (V) The reason adverbial can be paraphrased by "because of" plus a nominalization only in (1a):
 (10a) He went home because of his feeling ill.
 (10b) *He went home because of his not being here anymore.
- (VI) The reason adverbial can be preposed only in (1a), i.e., only (1a) is reversible:
 (11a) Because he felt ill, he went home.
 (11b) *Because he's not here anymore, he went home.
- (VII) The reason adverbial can be a response to a "why" question only in (1a):
 (12a) Why did he go home? - Because he felt ill.
 (12b) *Why did he go home? - Because he's not here anymore.
 (12a') Why do you say } he went home? Because he's not
 How do you know } here anymore.
 (12b') } *Because he felt ill.
- (VIII) (1b) has obligatory comma intonation, so that it is spoken in two tone groups, whereas (1a) is more usually spoken in one tone group.

This rule enables us to disambiguate superficially ambiguous examples, e.g.:

(13) She went away because I was watching her, which can have the readings "that's why she went away" (Type a), or "that's how I know" (Type b). Ambiguous cases arise where the reason adverbial is equally compatible as stating the cause of an event or action as well as justifying a preceding statement. The rules governing possible readings do not, however, depend on syntactic or semantic representations of the relevant clauses but on our knowledge of causality. For example, in

- (14) There's a fire over there, because I can see the smoke.

only a Type (b) reading is possible as we know that the existence of a fire does not depend on our seeing the smoke:-

- (14)*It's because I can see the smoke that there's a fire over there.

Following Rutherford (1970), I will refer to Type (a) reason adverbials, which express a causal connection between two events, as "restrictive" adverbials and will call Type (b) "nonrestrictive". In nonrestrictives the "because" clause justifies the preceding speech act, i.e., it states the reason why the speaker

is able to perform this act. This relation becomes explicit in (12b') and (4b'):

- (4b') It's because he's not here anymore that I say
(think/claim/know, etc.) that he went home.

Requests for information (questions) and requests for action (directives) can be analysed in the same way:

- (15) Has John arrived? because his wife wants to speak to him.

- (16) Marry Jane, because you love her.

Here the reason adverbials can state the reason for the preceding question and directive. Ambiguity is possible. In (15) the restrictive reading could be paraphrased as "is it because his wife wants to speak to him that John has arrived?", whereas the nonrestrictive reading would have the sense of "this is why I'm asking", where the speaker does not know whether John has arrived or not. With directives the distinction is almost neutralized. The restrictive reading states the reason why the hearer should perform the action and implies a preference for this over some other action, e.g.,

- (16a) Marry Jane because you love her not because she has a lot of money,

whereas the nonrestrictive reading states the speaker's reason for the request, e.g.,

- (16b) Marry Jane. I think you should because you love her.

It is interesting to examine how indirect speech acts combine with reason adverbials. Davison (1975) claims that illocutionary force is the determining factor for well-formed combinations, although the examples she cites are all "transparent" indirect speech acts, e.g., statements with a surface form of permission requests:

- (17) May I say that there is evidence of activity across the river,

or questions with imperative surface forms:

- (18) Let me ask if you have been taking any drugs recently.

Similarly, those indirect speech acts which seem to refer quite clearly to the preconditions of requests, i.e., speaker's wishes, hearer's ability, obligations and willingness, etc. (see Labov and Fanshel 1977), co-occur with reason adverbials with readings based on their illocutionary force and not their surface forms:

- (19) I want you to close the window, because I'm busy with the baby.
(20) You ought to close the window, because it's cold in here.
(21) Can you close the window, because I can't reach it.
(22) Would you mind closing the window, because I'm busy.

These would also be given directive readings on other criteria, for example, they admit preverbal please (see Ross 1975).

Problems arise, however, with more indirect speech acts when they combine with reason adverbials. Consider (23-26), which, under certain conditions, can imply (27):

- (23) Is that window open?
- (24) That window is still open.
- (25) You haven't closed that window.
- (26) It's cold in here.
- (27) Close that window.

An interrogative followed by a reason adverbial can have a directive reading:

- (23') Is that window open? because there's a terrible draught,

if the hearer infers that the speaker is referring to an aversive situation which he (the hearer) ought to remedy. Such a reading seems to depend on what is being asserted in the reason adverbial. For example, it is possible to ask someone to pick up a coat by saying:

- (28) Is that your coat on the floor?

but, whereas a directive reading is possible for (28'), only a question reading is possible for (28'')

- (28') Is that your coat on the floor? because I like this house to be tidy.

- (28'') Is that your coat on the floor? because you've got one like that, haven't you?

Whereas (28') refers to an aversive situation, in (28'') the reason adverbial refers to the item which is the focus of the main clause, i.e., whether the coat belongs to the hearer or not. Declaratives seem to admit either one reading only or no reading at all:

- (24') That window is still open, because there's a terrible draught.
- (25') You haven't closed that window, because there's a terrible draught.
- (26') It's cold in here, because there's a terrible draught.
- (26'') *It's cold in here, because I'm busy with the baby.
- (27') Close that window, because there's a terrible draught.

- (27'') Close that window, because I'm busy with the baby.

What I am claiming is that, although (27) retains its directive reading in combination with reason adverbials, (24) and (25) have the reading of statement plus justification, (26') has a restrictive reading only, and (26'') is anomalous. The "statement-only" readings for (24') and (25') have been contested by some native speakers, so perhaps intuitions vary here. However, although it is always possible for a hearer to infer some requested action on the basis of what has been said, I do not feel that these utterances are, in themselves, a means of expressing directive intent.

If this is so, then it seems that we can propose the following rules (Chris Lyons, personal communication):

- I. With interrogatives, if the reason adverbial makes sense in a question reading, then only that reading is possible (see 28"), otherwise it has an indirect directive reading.
- II. With declaratives, if any reading is possible, then only a statement plus justification reading (24', 25') or a restrictive reading (26') is possible.

Other indirect speech acts in combination with reason adverbials are anomalous (26"). This would suggest that, although (23) to (26) can imply (27), they differ in crucial ways, i.e., it is inappropriate to treat all indirect speech acts in a similar way (Davison 1975). Thus, although (24-26) can be related to (27) by referring to the preconditions underlying requests, e.g., "need for action", (24' and 25') can have readings of statement plus justification but there is no reading possible for (26"). The reasons for these discrepancies are not entirely clear but would appear to be related to what is being asserted in the reason adverbial.

I would now like to look briefly at how "because" behaves in other languages. The data which are presented in Table 1 are based on translations of the following sentences by native speakers:

- (29) He went home because he felt ill. (X because Y)
- (30) There's a fire over there, because I can see the smoke. (statement + justification)
- (31) Where's my glasses? because I can't see a thing without them. (question + justification)
- (32) Bring me a beer, because I'm very thirsty. (directive + justification).

It must be stressed that the data are problematic for the following reasons:

(i) Native speaker intuitions about language in use are notoriously difficult to elicit and are often unreliable (Labov 1972). Native speakers often tend to favour a more formal version of a sentence and overlook everyday usage. In addition, there was also discrepancy between native speaker judgements in some cases.

(ii) Translation of sentences is misleading as informants might produce a version which is close to the original but does not reflect natural everyday usage.

(iii) Translation of isolated sentences distorts the data for items such as "because" which are to be treated as discourse and not intrasentential phenomena.

Nevertheless, although the results presented in Table 1 are to be viewed as tentative and possibly unreliable, we can see that many languages make distinctions between the restrictive and non-restrictive uses of "because". In many cases, the word used to express a restrictive relation cannot be used in a nonrestrictive sense, whereas in reversible causals (because Y, X), this is the

Table 1. Restrictive and Nonrestrictive "because" in selected languages.

	X because Y	statement + justif.	question + justif.	directive + justif.
Bisayan	/baqúð/	/hay?/ /ʔa:bi?/	/hay?/ /ʔa:bi?/	/hay?/ /ʔa:bi?/
Cantonese	/ʔan wai/	-	-	-
Czech	protože	-	protože	protože
Danish	fordi	for	nemlig	for
	da	nemlig		da
Dutch	omdat(R)	want	want	want
English	because(R)	because	because	because
	for	for	for	for
Finnish	koska	koska	-	koska
French	parce que(R)	-	-	-
	car			
German	weil(R)	denn	denn	denn
	denn	nämlich	nämlich	nämlich
				weil
Hebrew	'jan	'jan	'jan	'jan
Hungarian	mert	mert	mert	mert
Italian	poiche(R)	-	che	che
	perchè	credo + perchè	perchè	perchè
Malay	sebab	sebab	-	-
Norwegian	fordi(R)	for	for	for
Polish	ponieważ	bo	bo	bo
	bo			
Rumanian	pentru că	pentru că	-	-
Serbian	jer	jer	jer	jer
Slovak	pretože	pretože	pretože	pretože
Slovene	ker	-	-	-
Spanish	porque	es que	-	-
Turkish	için	çünkü	çünkü	çünkü

(R): can be used in reversible causals

(-): no word used for "because"

only possible word for "because". In some languages, e.g., Cantonese, French and Slovene, nonrestrictive causality is expressed by clause juxtaposition without a conjunction, while in other cases, e.g., Bisayan, Danish, Dutch, German, Norwegian and Turkish, there is a different lexical item for nonrestrictive "because". In Italian, informants preferred to add a performative phrase e.g., "credo" ("I think"), or an epistemic modal, e.g., "ci deve essere" ("there must be"), to (30) to make the use of "perche" more acceptable, thus lending support to a performative analysis (see below). Thus we can see that there is some evidence from languages other than English for suggesting that there are two different types of causal relations between clauses. These different relations have been discussed elsewhere, usually in relation to other conjunctions. Van Dijk (1977) distinguishes between a "semantic" use of connectives to express relations between propositions and a "pragmatic" use expressing relations between speech acts, although Edmondson (1977) has pointed out some problems with this analysis. Halliday and Hasan (1976) make similar distinctions between "external" and "internal" relations. Rutherford (1970) uses the distinctions which he refers to as "restrictive" and "nonrestrictive" to support Ross's (1970) performative hypothesis. Essentially, Ross claims that all sentences are embedded in deep structure as object sentences of a higher sentence containing I as subject, you as indirect object and a performative verb, e.g., tell. Thus, (33) has the underlying structure of (34):

(33) Prices slumped.

(34) I tell you, prices slumped.

Most of Ross's arguments for the performative hypothesis have met with convincing counter-evidence (e.g., Grewendorf 1972). The final argument, which concerns reason adverbials and is discussed only briefly by Ross, is the basis for Rutherford's argument. Rutherford argues that the different types of reason adverbials are attached to their underlying structures at different levels, with nonrestrictive reason adverbials being attached to a higher performative such as "I know/think/believe, etc." which is subsequently deletable. In fact, nonrestrictive reason adverbials are seen as examples of surface structure traces of deleted performatives. However, the data from other languages presented above would argue against a purely syntactic explanation of the two types of "because". What I want to suggest is that a performative type of analysis, although plausible, needs to take account of the wider discourse context. Space permits only two brief examples:

(35) Speaker A: They don't send these books over here, you know.

B: Don't they? why not?

A: Oh, I don't know, it's something to do with us not living on the mainland.

(several lines of discussion about mainland deliveries)

A: Cos they're quite good books, really.

(36) Mother to child: *bo spadniesz*
(because you'll fall)

In (35) the reason adverbial seems to provide a justification for having raised the topic of mainland deliveries, i.e., "this is why I'm complaining". We might wish to postulate an underlying performative for A's first utterance such as "I complain that...". However, note that this structure is only realized retrospectively and only if the subsequent text provides a warrant for such a reading. In the absence of the reason adverbial, there would have been no warrant for assigning an illocutionary force such as complain to A's first utterance. A further problem is that, in informal conversation, reason adverbials often refer back not to one sentence but to a whole section of preceding text. Thus the use of "because" would seem to be a discourse rather than a sentence phenomenon. "Because" signals that there is some relation to what has gone before, but in order to interpret this relation, hearers must search the preceding text.

(36) is typical of a conversational usage of "bo" ("because") in Polish where the whole of the main clause can be ellipted, i.e., one meaning is "don't run, because you'll fall". Here we have to depend for the interpretation of the reason adverbial on the discourse or even the nonverbal context. In other words, we cannot rely simply on the linguistic items in the sentence itself for its interpretation but have to look beyond the sentence.

Conclusion

Summarizing briefly, I have shown how "because" can be used in two different ways in English and how this distinction is realized formally in other languages. Similar distinctions obtain for other conjunctions. However, in order to explain how "because" is used, we have to appeal to a discourse grammar rather than a sentence grammar. I cannot claim to have solved all the problems with reason adverbials here, and, for the time being, the most simple answer to the question why they behave as they do can be expressed cryptically in one word:
"because".

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Footnote

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SOME STRATEGIES FOR SUSTAINING CONVERSATION

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Despite the pervasive conviction, shared alike by participants in conversations and analysts of those conversations, that there is pattern and order in the succession of contributions of which they are constituted, the organisational principles which underlie this orderliness have proved remarkably resistant to formal description. Two features of conversation which contribute to the analyst's problems are, firstly, the manner in which the orderliness unfolds moment by moment in the local here-and-now of the interaction and, secondly, the fact that there is no one-to-one correspondence between the forms of utterances and the conversational functions that they perform in particular contexts. Is it possible, therefore, to make generalised statements about structure that will have some predictive value, yet at the same time give due recognition to the complex, on-the-spot creativity that conversationalists display in particular contexts? Can a description be given of the 'abstract resources' that Schenkein refers to, when he describes conversation as "organised through abstract resources bearing on locally idiosyncratic conversational environments" (1978:3) ?

Our own interest in these problems stems from our attempt to trace the development of conversational skills in children and to investigate the contributions that different styles of conversation make to children's learning. The data we are working with consists of recordings of spontaneous talk between young children and their parents and teachers, and it is on the basis of analysis of this material that we are constructing a descriptive framework that we hope will also apply to other types of discourse.¹ Since a fairly full exposition of this framework has been presented elsewhere (Wells, Montgomery and MacLure 1979) we shall restrict ourselves on this occasion to the discussion of an elaboration of one aspect of the model.

The Sequential Organisation of Discourse

Perhaps the most salient feature of discourse, and the one that attests most strongly to the existence of orderliness, is the prevalence of pairs of utterances that are both structurally and functionally linked, e.g., question-answer, request-comply, inform-acknowledge. However, analysis of discourse solely in terms of such 'adjacency pairs', as they have been called (Schegloff and Sacks 1973), is not entirely satisfactory for two reasons. Firstly, they do not account for all the structurally related sequences of utterances that can be recognised in texts and so

cannot provide a firm basis for a descriptive framework that will account for complete texts; secondly, the form in which the description is made fails to distinguish between the indefinitely extendable list of speech acts that speakers may perform and the strictly limited types of structural organisation through which these acts are related.

Following other linguists, therefore (e.g., Sinclair and Coulthard 1975; Halliday 1977), we prefer to start with a more abstract category, the EXCHANGE. This we define as consisting of two structural positions: an INITIATING move by a first speaker and a RESPONDING move by a second speaker. The exchange is thus the minimal unit from which longer stretches of discourse are constructed. On the paradigmatic axis, the move types which can fill the two syntagmatically defined positions are derived from the basic dynamics of any social interchange - whether verbal or non-verbal (cf. Halliday 1977). That is, in opening any social exchange, a participant can either GIVE something to the other participant or SOLICIT something from him. The respondent then completes the exchange by, respectively, ACKNOWLEDGING what has been given or GIVING what has been solicited. Within the one syntagmatic structure there are thus two basic types of exchange:

- (i) Initiate: Solicit - Respond: Give
- (ii) Initiate: Give - Respond: Acknowledge

Onto one or other of these basic exchange types can be mapped the whole range of reciprocally related speech acts, including those identified as adjacency pairs:

<u>Solicit - Give</u>	<u>Give - Acknowledge</u>
Request - Comply	Assertion - Agreement
Question - Answer	Statement of
	Intention - Evaluation
Invitation - Acceptance, etc.	Offer - Acceptance, etc.

Thus far we have described a basic structure of discourse, the single exchange, and shown how it is related to more functionally-oriented descriptions of discourse organisation. However, most conversations consist of longer stretches of related exchanges, even where small children are involved as participants (cf. Keenan 1977). One way in which such longer stretches may be built up is by simply chaining a series of topically related exchanges one after another.

In this pattern, typified by a teacher asking questions around a class, following each response by a further question on the same, or a related, topic, the coherence that is perceived stems partly from the repeated exchange structure of question and answer, and partly from semantic continuity realised through syntactic and lexical cohesive links between the separate exchanges. The following is an example of such a conversation involving a rather younger child:

1. Father: Where did Pappy go yesterday? Seaside?
 Mark: Seaside
 Father: Who did he go with?
 Mark: With Pappy @ Nanna @Pappy
 Father: And Paul
 Mark: An Paul
 Father: And Sandra
 Mark: An Sandra

(Mark, 26½ months)

However, conversations built on this pattern alone are not very common. Much more frequent, with parents and teachers alike, is the use of strategies that extend the first exchange by linking a further exchange to it, thereby sustaining the child's participation. The resulting structures we term SEQUENCES. One very common linking device is to produce an utterance which, while responding to a prior initiation, simultaneously initiates a further exchange. For convenience, we shall refer to utterances which combine the responding position in one exchange with the initiating position in another as occurring in a CONTINUING position in the sequence.² Continues are found at various points in the unfolding of a sequence and draw upon a variety of syntactic and intonational options for their realisation. One obvious syntactic mechanism is the addition of a tag:

2. Stella: Zat? I Solicit
 Father: That's a carpet-sweeper isn't {R} Give + Ex 1
 it like Mummy's? {I} Ex 2
 Stella: Yes like Mummy's R Give
 (Stella, 24 months : 23)

3. Mark: Where's Pappa's pen draw on I Solicit
 there? {R} Give + Ex 1
 Mother: You left it at Clifton didn't {I} Ex 2
 you? R Give
 Mark: No
 (Mark, 30 months)

In both these examples it is the addition of a tag to the parent's move which, in these particular contexts, makes them response-demanding, and thus non-terminal (indicated by '+' in the move description above).

A similar effect can be achieved through intonation (cf. Appendix for conventions of transcription):

4. Stella: 12'Zat/..43'Daddy I Solicit
 Father: 14'Paddling pool {R} Give + Ex 1
 {I} Ex 2
 Stella: 24'Paddling pool R Give
 (Stella, 24 months: 23)

- In all these different examples a Continue occurs when the participant who is cast in the role of respondent in the first exchange produces an utterance which simultaneously initiates a further exchange. It is thus designed by its producer to

sustain the discourse and in adult-child talk is most likely to occur when the child is the initiator of the first exchange.

Where it is the adult, on the other hand, who is the initiator of the first exchange, the Continue strategy is not available. However, there is an alternative, which has a similar effect of sustaining the discourse beyond a single exchange. As we saw earlier, Give moves can occur in either position in the structure of the exchange: as response to an initiating Solicit or as initiation to which an Acknowledge is the expected response. In an exchange initiated by a Solicit, the dual potential of the Give move which occurs as response can be exploited by the original initiator treating it as an initiation, to which an Acknowledge may be given as a response:

- | | | | |
|-------------|---------------------------------|---------------|--------|
| 8. Teacher: | Who knows what ice is? | I Solicit | } Ex 1 |
| Pupil: | I have that in my drink at home | { R } Give | |
| Teacher: | That's right | { (I) } R Ack | } Ex 2 |
- (Jacqueline, 5½ years : CL2R)

Here, following a Give in response to an initial Solicit, the teacher treats that Give as an initiation to which she provides a responding Acknowledge. The () round the I in the second exchange indicates that, in providing the Give in response to the initial solicit, the respondent need have no intention of initiating a further exchange: rather, it is the first speaker who, exploiting the latent opportunity for Gives to receive Acknowledges, retroactively constitutes the response as the initiation of a second exchange by providing that Acknowledgement. Here again, the linking move combines response and initiation positions, but the combination in this case is imposed after the event by the original initiator.

Sinclair and Coulthard (1975) describe the structural position of the 'retroactive Acknowledge' as a FOLLOW-UP and this is a very apt description. However, where they treat it as the third position in a basic three-part exchange, which they consider to be particularly characteristic of teacher-pupil interaction, we wish to treat it, like the Continue position, as a device for linking two exchanges to form a longer sequence.³ At the same time it should be pointed out that the Follow-up strategy is not restricted to contexts like the classroom, where the opening Solicit calls for a display of knowledge or competence, and where the final Acknowledge is usually some kind of evaluation, as can be seen from example 9. Here it is Thomas who initiates the sequence with a Solicit and follows up in the second exchange with an Acknowledge.

- | | | | |
|------------|--------------------------|----------------|--------|
| 9. Thomas: | What's a down there? | I Solicit | } Ex 1 |
| Adult: | That's the tape recorder | { R } Give | |
| Thomas: | 'corder | { (I) } R Ack. | } Ex 2 |
- (Thomas, 27 months)

Secondly, not all teacher questions inexorably lead to a Follow-up, as can be seen in example 7, where, following Rosie's response in exchange 2, the teacher initiates a new, topically related exchange.

The final linking strategy that we will discuss may at first sight seem rather different. Following any move in a sequence, the recipient of that move may produce a move which is a Solicit rather than the Give or Acknowledge that is anticipated - but which is nevertheless not heard as inappropriate, e.g.:

- | | | | |
|-----------|------------------------------|-----------------------------|--------|
| 10. Mark: | 3ə fwa (= can I have water?) | I Solicit | } Ex 1 |
| Mother: | What? | {Ret
I} Solicit | |
| Mark: | 3ə fwa | {R
I ₂ } Give | } Ex 2 |
| Mother: | No | R Give | |
| | | (Mark, 23½ months) | } Ex 3 |

Instances such as these have often been analysed as creating some sort of embedded structure, with one exchange intervening between the start and the completion of another (Jefferson 1972). To account, within the framework being developed here, for the fact that we hear such Solicits as (i) initiating a further exchange, (ii) somehow taking account of the previous move, and (iii) allowing a subsequent resumption of the matter in that previous move, we introduce the structural category RETURN, which in these cases replaces Response as the second part of an exchange, introducing a bound exchange (i.e., one which cannot stand alone). In the example above, Mother's Solicit is a Return in that it both initiates a new exchange and, at the same time, takes account in some sense of the preceding initiation. Mark's reply both responds to the immediately preceding initiation and in so doing re-initiates the first exchange. Mother's final response then, strictly speaking, only responds to the initiation in the preceding move but, since this is a re-initiation of the utterance which started the sequence, it can be seen how this is heard as some sort of 'retrieval' of the exchange set up by the original initiation. This account, we believe, partially overcomes the problem raised by the notion of 'embedded' or 'inserted' exchanges, with the implication that the ultimate completion of the first exchange can be predicted from the original initiation independently of the pattern that the intervening exchange(s) may take.

Sequences such as Example 10 have been described as 'contingent queries' (Garvey 1977) or 'clarification request sequences' (Corsaro 1977), and 'clarification' certainly seems to be the function of the exchange initiated by 'What?' in the above example. But our data abound in instances of a rather similar pattern, where the child's initiation is followed by an adult utterance which simply repeats the child utterance with the addition of some modification that signals the expectation of a further response from the child:

11. Mark: 1' Oh Mark got 34'change
 Mother: †12'oh you've/2'got some 343'change/32'haven't you
 Mark: 34'Yeh
 (Mark, 30 months)
12. Stella: 2'Put it 12 a'way
 Mother: †Put it 121 a'way
 Stella: 12'Yeh
 (Stella, 24 months: 03)
13. Rosie: I don't 243'like that one
 Teacher: You don't 24'like it
 Rosie: (shakes head)
 Teacher: 1'Why 243'not
 Rosie: I only 2'likes 342'little ones.
 (Rosie, 5½ years: LHS2)

As we have pointed out elsewhere (Wells and Montgomery, in press), repetitions in themselves do not set up expectations for a responding move, for they can often be heard as simply acknowledging a preceding Give. However, where they are uttered with high pitch or with an added tag, as in these examples, they are invariably followed by a further response.

In some cases, such as examples 12 and 13 above, the function of the response-demanding repetition seems very similar to the direct Solicit in example 10, that of checking reception of the previous utterance before extending the matter further. But this is not always the case, as can be seen from example 11. However, what all the examples 10-13 have in common is that, where a purely responding utterance would be expected as the sequel to the initiating move, the second utterance fails to provide the expected response, but rather, itself, calls for a further response. There is clearly some similarity between these examples of sequences involving a Return and some of those considered earlier that were linked by a Continue (e.g., 2-5). The essential difference between the two types is that, whereas a Continue is simultaneously both an initiation and a 'well-formed' response, in the case of the Return, the utterance which initiates the linked exchange does not provide a conversationally well-formed response to the previous move.

Linked Exchanges and Degrees of Prospectiveness

In the preceding pages we have considered a number of strategies which are used, amongst other reasons, to sustain conversation, by creating sequences of linked exchanges, and thereby extending the point at which closure occurs. As was suggested at the outset, the functions that these devices can serve in the context of particular interactions are extremely various and hardly to be captured within a formal description. However, in structural terms, there does seem to be a limited number of ways of linking exchanges, of which we have described three. In each case, the link is achieved by making one utterance fill two structural

positions simultaneously: response in the first exchange and initiation in the second. What sort of combination is involved - Continue, Follow-up or Return - depends upon whether the link is made prospectively or retrospectively, and on the extent to which the new initiation can also be heard as a well-formed response. However, what all these devices have in common is their effect of extending the first exchange in ways that are clearly structural.

At this point, therefore, it may be helpful to see whether there are any further characteristics that are shared by the various types of link. One such feature is the PROSPECTIVE force of the linking utterance in each type. The notion of prospectiveness was suggested by Sinclair (1975), and Coulthard and Brazil (1979) make use of an opposition between the prospective and retrospective roles of initiating and responding utterances in their account of the structure of the exchange. However, what was originally put forward as a dichotomy, we propose to treat as a scale, with moves being rated from most strongly to least strongly prospective. At one end of the scale are Soliciting moves, which are strongly prospective in their expectation of a response; at the other end are Acknowledges, which are very weakly, if at all, prospective, since they always occur in response position. Around the middle of the scale are Give moves, which have the potential of functioning as either initiations or responses.

Associated with these three segments of the scale, though by no means in a simple one-to-one relationship with them, are the options in the mood system: wh- and polar interrogatives being associated with Solicits, declaratives with Gives and a variety of moodless structures and idioms with Acknowledges. In a fuller exposition, finer distinctions would need to be made between, for example, the relative prospectiveness of wh- as compared with polar interrogatives, or between full and elliptical declaratives.⁴ Qualifications would also need to be made concerning the way in which mood interacts with the semantic content of the utterance and with features of the non-verbal context, in arriving at the precise degree of prospectiveness of particular utterances (cf. Davies 1979). Nevertheless, the above correspondences are correct for what might be called 'canonical' cases.

Also associated with the scale of prospectiveness are the intonational options of tone and pitch height: rising tones and high pitch being heard as more strongly prospective with respect to a particular utterance than falling tones or low pitch. These options, together with the syntactic options of adding a tag to a declarative utterance or a 'recipient address term', such as 'Mummy', provide means for increasing the prospectiveness of moves that are not initially strongly prospective in terms of their mood choice. The result is that, as a speaker constructs his move in the context of the ongoing exchange, he or she has available a range of options of varying degrees of prospectiveness, which allows him to influence whether the conversation

stops at that point or continues for at least one move beyond the response position in any exchange.

Looked at in terms of the scale of prospectiveness, it can thus be seen that all the linking strategies share the feature of exploiting the possibility of increasing, by syntactic or intonational means, the prospectiveness of moves which follow an initiation. In the sequences involving Continues, moves which, in context, would otherwise be simply Gives or Acknowledges are given increased prospectiveness by the addition of a tag or the choice of high pitch, or by realising the Acknowledge only implicitly, thus causing them to function as initiations of further exchanges. Sequences involving Follow-ups exploit the mid-range of prospectiveness associated with Give moves by completing a linked exchange with a move that is weaker in prospectiveness than the preceding Give. In sequences involving Returns, the initiating move in the bound exchange is upgraded in prospectiveness beyond the level contextually anticipated to such an extent that such moves do not even qualify as well-formed responses and are heard as in some sense interrupting the flow of the discourse.

It seems, therefore, that the way in which the various pragmatic functions of utterances investigated by those working in the Austinian tradition of speech acts are mapped onto the sequential organisation of discourse can be partly explained in terms of the way in which the three basic types of move are built into exchanges and sequences through exploitation of the scale of prospectiveness. At this stage, this proposal is no more than a working hypothesis, in need of evaluation through the analysis of additional data. If it survives this test, however, it may provide a means of explaining how some of the systems of linguistic form are drawn upon, in context, to achieve the various structural patterns that we recognise in coherent sequences of conversation.

Notes

1. This research is funded by the Social Science Research Council (U.K.).
2. Previously (Wells *et al.* 1979) we treated Continue as a third structural position in an extended exchange. We now consider it preferable to treat such cases as sequences of overlapping (linked) exchanges rather than as alternative structural organisations of the basic exchange.
3. A fuller formal justification for this decision can be found in Wells *et al.* 1979.
4. In particular we are aware of having ignored the imperative mood in the interests of simplicity of exposition, since it requires a rather different form of treatment (cf. Coulthard and Brazil 1979).

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Appendix : Intonation

Some of the examples include a representation of intonation, in which case the following conventions apply:

- / Tone unit boundary. Where an utterance consists of only one tone unit, no boundaries are marked.
- ' This symbol immediately precedes both prominent and tonic syllables. Prominent syllables take a single digit before the symbol to indicate their relative pitch height. Tonic syllables take two or more digits before the symbol to indicate the onset level, range and direction of significant pitch movement (see 'Pitch Height' below).
- ↑ Shift of pitch range relatively higher or lower than normal for the speaker.
- : Lengthened syllable. The symbol follows the syllable to which it applies.

Pitch Height. The height, direction and range of significant pitch movement is represented by a set of digits corresponding to points on a scale. The pitch range of a speaker is divided into five notional bands, numbered 1-5 from high to low.

The following information is retrievable from this coding:

<u>Direction of Movement</u>	<u>Halliday (1967) Tones*</u>
Falling: (e.g., 13, 25)	Tone 1
Rising: (e.g., 31, 43)	Tone 2
Level: (e.g., 33)	Tone 3
Fall-Rise: (e.g., 343) or (e.g., 342)	Tone 4 or Tone 2
Rise-Fall: (e.g., 324)	Tone 5

Note

The conventions of transcription allow for 5 gradations of pitch height. In talking about pitch height, levels 1 and 2 are considered 'high', whereas levels 4 and 5 are considered 'low'.

*Halliday, M.A.K. (1967) Intonation and Grammar in British English.
The Hague : Mouton.

AUSTINIAN IFS AND CONDITIONAL TELLING

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In his essay 'Ifs and Cans', J.L. Austin (1970: 209-213) claimed that there are many cases in which if serves, not to introduce a condition, but to express the speaker's doubt or hesitation regarding the state of affairs referred to by the clause following the if. As an example he offered:

- (1) There are biscuits on the sideboard if you want them.

With a conditional if, Austin argued, one may infer from 'If p then q' that 'If not q then not p' (modus tollens); but one may not infer from 'If p then q' that 'whether or not p, then q', nor 'q' simpliciter. With (1), however, this pattern is reversed. From (1) we may not infer 'If there are no biscuits on the sideboard, then you do not want them.' But we may infer 'There are biscuits on the sideboard, whether or not you want them' and we may infer simply that 'There are biscuits on the sideboard.'

Austin admitted that we might think that (1) requires expansion to reveal its meaning. The expansion he toyed with was:

- (2) There are biscuits on the sideboard which you can (or may) take if you want them.

According to Austin, however, such an expansion does not steer us away from a non-conditional if toward a conditional if, because even in the expanded version there is still no genuine consequent for the if clause. Your ability to take the biscuits is no more a consequence of your wanting them in (2) than is their existence on the sideboard a consequence of your wanting them in (1). Sentence (2) is no more conditional than (1): your wanting biscuits is not a condition of anything in either. From this observation Austin concluded that in sentences like (1) the if is not a conditional if linking the if clause to the main clause; this if operates independently to express the speaker's doubt or hesitation regarding the state of affairs in the if clause.

Robert Fogelin (1972) has argued that Austin did not look deep enough for the conditional structure of sentences like (1). If (1) is expanded correctly, according to Fogelin, it turns out to be (3), which is an unconditional assertion (that there are biscuits on the sideboard), plus an offer (of biscuits) with a stipulated condition (that you want some).

- (3) There are biscuits on the sideboard, so have some if you want.

The condition here is very weak, Fogelin says, but it is nonetheless a condition. When I use (3), 'I haven't exactly ceded you my biscuits. I may think that you have gone beyond my offer if you take my biscuits and feed them to your dog or sell them in the streets.'

Fogelin was on the right track, I think, in looking deeper for the conditional structure of sentences like (1), and also for analyzing the *ifs* in such sentences as *ifs* of stipulation. I hope to show, however, that his formulation of the conditional structure of these sentences is incorrect. As Austin did in (2), Fogelin treats the main clause as a straightforward assertion which does not fall under the stipulated condition in the *if* clause in any way. And herein lies his basic error. Now propositions as such (here 'there are biscuits on the sideboard') do not fall under stipulative conditions in the sense that their truth or falsity hinges on the condition being met--it is not a state of affairs obtaining, but someone's doing something, that hinges on a stipulative condition. But a proposition may well be embedded in an act like telling, which is someone's doing something, and in this way a proposition can fall under a stipulative condition. This is precisely what happens, I shall try to show, in sentences like (1).

What I would like to do, then, is offer a general account of sentences like (1) that employ a stipulative *if*. Partly in honor of Austin, but mostly just for convenience, I'll refer to these sentences from now on as 'A-sentences'.

If, as I have said, A-sentences have a conditional structure, then what is hanging on what? At the superficial grammatical level they have the same structure as assertions that a conditional relationship like causality holds between two states of affairs, the structure found in sentences like:

- (4) We won't be able to get in if she locked the door.

But as Austin has shown, this cannot be their logical structure. When I use a sentence like (1) I am not asserting that if *p* then *q*. A-sentences, indeed, are not assertions at all. As we shall see in a moment, they are rather conditional offers, conditional imperatives, conditional warnings, etc. The *if* clause in an A-sentence sets up a condition, but it is a stipulative and not a causal condition. And what hinges on this condition being met is not the truth of the main clause. As with any stipulative condition, what depends on the condition in A-sentences is someone's doing something, here the speaker telling the listener something. And what the speaker conditionally tells the listener is found in the main clause. The logical structure of an A-sentence is not

I ASSERT (if p then q). Nor is it that offered by Fogelin: I ASSERT (q, and if p then r) [r standing for some suppressed consequent]. The logical structure of an A-sentence is rather: If p, (then) I'M TELLING YOU THAT q. The main clause is not an independent assertion, as both Austin and Fogelin claim. It is embedded in the act of telling, which is dependent on the stipulative condition. The main clause itself, preceded by I'M TELLING YOU THAT, is the consequent in an A-sentence. The logical structure of (1), in other words, is not (2) or (3), but:

- (5) If you want some biscuits, I'm telling you that there are some on the sideboard.

The simplest cases of this conditional telling are those involving only the offering of useful information, e.g. (6).

- (6) If you're driving into town, the old bridge on Route 15 is out.

The conditional structure of this sentence is revealed if we expand it thus:

- (6') If you're driving into town, I'm telling you that the old bridge on Route 15 is out.

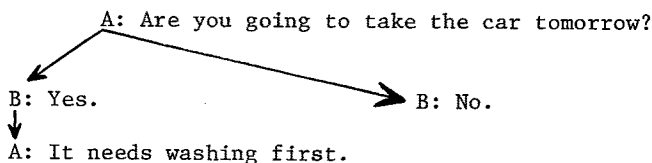
But often in A-sentences more is being done in the telling than offering information. In (7)-(12) we can see the variety of speech acts accomplished by the telling in A-sentences. In one case it is warning, in another ordering, in a third inviting, etc. After each of these sentences I have given two others: the first is an expansion which makes explicit the conditional telling, and the second is a roughly equivalent sentence which makes explicit the speech act to be accomplished by the telling.

- (7) If you're the one who has been playing the tuba after midnight, I'm going to call the police the next time.
 (7') If you're the one who has been playing the tuba after midnight, I'm telling you that I'm going to call the police the next time.
 (7*) If you're the one who has been playing the tuba after midnight, I'm warning you that I'm going to call the police the next time.
 (8) If you're going to take the car tomorrow, it needs washing first.
 (8') If you're going to take the car tomorrow, I'm telling you that it needs washing first.
 (8*) If you're going to take the car tomorrow, I order you to wash it first.
 (9) If you're not busy Friday night, we're having a party.
 (9') If you're not busy Friday night, I'm telling you that we're having a party.

- (9*) If you're not busy Friday night, I invite you to the party we're having.
- (10) If you need a quiet place to study while I'm away, my room won't be in use.
- (10') If you need a quiet place to study while I'm away, I'm telling you that my room won't be in use.
- (10*) If you need a quiet place to study while I'm away, I'll let you use my room since it won't be in use.
- (11) If you need a hand moving the piano, I'll be home all afternoon.
- (11') If you need a hand moving the piano, I'm telling you that I'll be home all afternoon.
- (11*) If you need a hand moving the piano, I offer to help you since I'll be home all afternoon.
- (12) If you need more grass seed, we've got plenty.
- (12') If you need more grass seed, I'm telling you that we've got plenty.
- (12*) If you need more grass seed, I offer you some since we've got plenty.

In (7) my conditionally telling you that I'm going to call the police the next time constitutes a conditional warning: on the condition that you are the late night tuba player, I warn you that I'm going to call the police the next time. In (8) my conditionally telling you that the car needs washing is conditionally ordering you to wash the car: on the condition that you are going to take the car tomorrow, I order you to wash it first. In (9) my conditionally telling you about the party is conditionally inviting you: on the condition that you are not going to be busy on Friday night, I invite you to the party. The conditional telling in (10) is a conditional permission, and in (11) and (12) a conditional offer, of help in (11) and of some grass seed in (12). In each case the if sets up a stipulative condition. If the condition is met, then I'm warning, ordering, inviting, giving permission, or offering. If the condition is not met, then there is no warning, ordering, etc.

To better understand the conditional structure here, we might observe that someone using an A-sentence could do what he does in this sentence by instead using a (potentially) two-stage linguistic exchange. Consider, for example, the situation of a person A using sentence (8) with person B. Instead of uttering (8), A might first ask B, 'Are you going to take the car tomorrow?' If B answers 'Yes' then A would go on to tell him that it needs washing. If, on the other hand, B answers 'No', then A would have nothing more to say. Knowing that B is not going to take the car, he would not tell B that it needs washing. His imperative, that is, will not be unconditionally issued; it will be issued if B is going to take the car, but will not be issued if B is not going to take the car.



In (8) this two-step process is combined into a single utterance. When A utters (8) to B, he does not unconditionally tell B that the car needs washing. He makes his telling B that the car needs washing conditional on B's intention to take the car.

The two-step equivalents of our other A-sentences would be similar to the above, except for the speech act performed by the telling. In each case, A would ask B whether a certain condition were met (the condition found in the if clause of the A-sentence). If it were, then A would go on to tell him that there was going to be a party (invite him to the party), tell him that there were biscuits on the sideboard (offer him the biscuits on the sideboard), or whatever. If the condition were not met, then A would have nothing more to say.

Once we see that in A-sentences it is the speaker's telling the listener that q, and not the truth of q, hinges on p, we can also see that modus tollens does apply to these sentences as it does with any if of stipulation. Austin was right that we cannot infer from 'If p then q' to 'If not q then not p' here. But since the consequent in A-sentences is really 'I'm telling you that q' we should not expect such an inference. The inference we would expect is 'If I'm not telling you that q, then not p.' And this inference is valid.

Part of the reason why the logical structure of sentences like (7)-(12) has been misunderstood, I think, is that though these sentences are conditional warnings, orders, invitations, permissions, and offers of help and goods, they are not explicitly phrased as such. Rather they are all phrased as (6) is, as conditional offers of information. In each, the main clause looks as if it were meant merely to convey the information that the car needs washing, or that we are having a party, etc., as the main clause in (6) is meant merely to convey the information that the old bridge is out. There need be no misunderstanding of the speech acts in (7)-(12), however, if we pay close attention to the use of these sentences. Now (7)-(12) may convey information, just as explicit conditional warnings, orders, invitations, etc. may convey information. But the speech acts involved are nonetheless warning, ordering, inviting, etc. Sentences (8) and (8*), e.g., are both conditional orders. Both may be used in situations where they convey to the listener the information that the car is dirty. But both are also used in situations where no information is conveyed and where the speaker does not intend to convey any information. You may already know that the car is dirty, and I may

know that you know that it is dirty; and I may still use (8) to conditionally order you to wash it, just as I may use (8*).

We often, in fact, phrase our commands, invitations, etc. as mere offers of information, whether they are conditional or not. We often tell someone to do something, or invite him to a certain event, e.g., by telling him something--that the car needs washing, or that there is going to be a party. The basic reason for this practice seems to be that it gives our command, our invitation, or other speech act a degree of politeness that would be missing from an explicit command or invitation. Politeness is important in A-sentences because they all call for, or at least suggest, some action on the part of the listener. And this matter of guiding someone's actions can be a touchy business. Usually when we are involved in guiding someone's actions we do not want to appear to be forcing our listener to do anything. This is true especially when we are merely suggesting a certain action, but is also true even when we are issuing an order. People in general put a high value on their autonomy; they like to feel that in any situation there are several options open to them. And so in guiding the actions of others it is important to respect this autonomy, at least to whatever degree this is possible.

To appreciate how the 'informational' phrasing of (7)-(12) gives them this element of politeness, we might contrast these sentences with (7*)-(12*), in which the speech act to be (conditionally) performed is announced. Consider the command in (8) as contrasted with the command in (8*). Telling someone that something is the case, here that the car needs washing, is more polite than explicitly ordering him to do something, here to wash the car. Now 'the car needs washing', uttered in circumstances where it is clear that you are the one to do the washing, accomplishes the same speech act as 'I order you to wash the car' or 'Wash the car'. But it does its job in a much nicer way. Though it is an imperative, it has the form of telling the listener about a state of affairs; and it is easier to accept an implicit command phrased as information than it is to accept an explicit command.

The conditional warning in (7), precisely because it is a warning, is not meant to be option-preserving, and so has little, if any, more politeness than (7*). If you are the late night tuba player, I want to force you to stop--politeness is not a consideration here.

In issuing permissions, invitations, and offers of help or goods, of course, the presumption is that the speaker respects the listener's autonomy. And so in these cases there is not as great a risk of appearing to close off the listener's options as there is, say, in commands. But there may be some risk, nevertheless; and phrasing permissions, invitations, and offers of help or goods as offers of information gives them an extra measure of politeness by making it clear that no compulsion is involved. Another dimen-

sion to politeness in phrasing these speech acts in this way is that the more impersonal form of telling someone about a state of affairs calls less attention to the speaker and the generosity he may be exhibiting, and so makes it easier for the listener to accept the permission, invitation, or offer. Truly generous offers are not phrased as generous offers.

Now all these comments about the politeness of 'informational' phrasing apply just as well to telling which is not conditional as to conditional telling. But there is an extra dimension to the politeness of conditional telling. It can best be seen, perhaps, if we ask why people often use A-sentences in situations where they know that the condition in the if clause is met. Why, for example, might I use (8) when I know that you are planning to take the car tomorrow? Or why might I use (1) when you have just told me that you have a hankering for some biscuits? We use the conditional form in such cases, I think, for extra politeness. Even if I have it from a reliable source that you are planning to use the car tomorrow--indeed, even if you told me earlier that you were--you may have changed your mind by the time I come to use (8). To show that I respect your right to change your plans, I use (8) rather than an unconditional imperative. Even in cases where you have told me very recently that you are going to take the car, moreover, I might still use (8) rather than an unconditional imperative, to allow you the option of changing your mind after our conversation. If I simply tell you to wash the car, then you have been ordered to wash the car; if I use (8) I allow you the option of not taking the car and so not having to wash it.

The condition in an A-sentence gives it extra politeness, too, by linking the speech act to the state of affairs in the condition. In this way A-sentences help the listener to see what is going on in the speaker's mind, to see the reasoning behind the speech act. Even where I know that you are planning to take the car, for example, my use of (8) shows you my reason for telling you to wash it, in a way that an unconditional imperative would not. If you are going to be using the car, then it's only fair that you should wash it. This feature of linking the speech act to the state of affairs in the if clause adds politeness, too, in conditional permissions, invitations, and offers. In these speech acts the condition is usually based on the listener's desires and plans. Our use of the conditional form shows our listener that we are aware that he may have certain desires and plans, but also that we are not presuming that he does.

Upon analysis, then, our use of A-sentences turns out to be an affair of considerable complexity and subtlety. And we go to the trouble of using these sentences, rather than their simpler counterparts, in order to show our respect for the person to whom we are speaking, especially for his autonomy and for the complexity and changeability of his desires. The existence of such sentences in our language, I would like to think, is a nice tribute

to our awareness of each other's complexity and, ultimately, each other's dignity.

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INFORMATION STRUCTURE AND PRAGMATICS IN SPANISH DISCOURSE

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One of the more interesting and important topics of current linguistic research is the investigation of the process by which information is encoded into linguistic structures, especially as it relates to discourse. Although the majority of discourse studies have centered on English, there have been several significant studies conducted on information structure in Spanish discourse (see Bolinger 1954-55, Hatcher 1956, Dubsky 1960, Contreras 1976, and Suñer 1979).¹ These studies have demonstrated that Spanish speakers generally encode information in a linear sequence in which 'that which is presupposed but needs to be stated in order to clarify or remind precedes; that which is unexpected, informative, and contrastive follows.' For example, according to Bolinger (1954-55, 48) a common response to the question given in (1a) is (1b):

(1)

- a. ¿Quién dejó olvidados estos paquetes?
'Who forgot these packages?'
- b. Los dejó olvidados el cartero².
'The mailman forgot them'.

In addition to employing word order relationships to impart information, Spanish adheres to the general postulate of article usage, which maintains that when the definite article modifies a noun phrase, the NP is interpreted as conveying known information, and when the indefinite article is used with a NP, the NP is construed as introducing new information (see Bolinger 1977, Chafe 1976, Kempson 1975, Bello 1970, and Alonso 1967).³ In the following example, the first sentence introduces libro 'book' as new information and the second sentence repeats the NP as a known entity:

(2)

- a. Compré un libro.
'I bought a book'.
- b. El libro me costó veinte dólares.
'The book cost me twenty dollars'.

The present study investigates word order and article selection in Spanish in a broader and more natural empirical framework than that employed in previous studies. It will be shown that the encoding of information into linguistic structure in at least one type of Spanish discourse entails a bipartite judgement on the part of the speaker with regard to the status of the hearer's knowledge. As will become evident, one aspect of the speaker's judgement affects subject/verb word order while the other influences article selection.⁴

Forty-three native speakers of Spanish from Mexico, El Salvador, and Panama were asked to describe the layout of their respective domiciles. According to Linde and Labov (1975, 925-926), a layout discourse has the properties of a natural experiment to the extent that it is well-motivated (i.e., people are interested in talking about their own homes); it is controlled (i.e., respondents are confronted with the problem of converting the same spatial network into discourse); it is well-practiced (i.e., speakers are dealing with a familiar topic).

In the forty-three layouts, it was found that 'room-mentions' (information) were encoded into a variety of linguistic structures including adverbial phrases, pronouns, and full noun phrases. Evidence uncovered by Linde (1977, 227) suggests that full noun phrases functioning as subject are best suited for the analysis of information encoding. This is especially true of Spanish due to its relatively free subject/verb word order. Consequently, I will focus on the encoding of information in full noun phrase subjects.

Of the 131 first mentions of rooms (supposedly new information) made with NPs as subjects, 99% or 130 contain an NP in post-verbal position, as illustrated in (3):

(3)

- a. Cuando entra uno, está la sala de mano derecha.
'When one enters, the living room is to the right'.
- b. Caminando a la derecha está un comedor.
'Walking to the right is a dining room'.
- c. En seguida de este cuarto y a la derecha de las dos puertas está la cocina.
'Following this room and to the right of the two doors is the kitchen'.
- d. Otra vez en la entrada está el comedor derecho.
'Returning to the entrance, the dining room is straight ahead'.

Frequently in layout discourse it is necessary for the speaker to mention a particular room a second time, either as a point of reference for introducing an additional room or in order to describe the room in detail. Such second mentions are interpret-

ed as reintroducing known information (Linde 1977). Of the 87 second mentions made by the Spanish respondents, all occurred with the NP in an adverbial phrase or as subject in pre-verbal position, as illustrated in (4) below:

(4)

- a. En seguida de este cuarto y a la derecha de las dos puertas está la cocina. La cocina está colocada al lado del estudio y el comedor.
 'Following this room and to the right of the two doors is the kitchen. The kitchen is located to the side of the study and the dining room'.
- b. Del comedor a la izquierda corre un pasillo. Caminando el pasillo se encuentra un baño a la derecha.
 'From the dining room to the left runs a hallway. Walking down the hallway one finds a bathroom to the right'.

The types of sentences presented in (3) and (4) appear to corroborate the findings of the earlier studies in that new information is evidently introduced in post-position, while old information is repeated in pre-verbal position.

The picture becomes somewhat obscured, however, when the issue of article selection in the NPs is considered. Of the 130 first mentions in post-position, 58% or 75 use the definite article and 42% or 55 employ the indefinite article. The distribution of article selection paired with specific rooms is given in Table 1.

Table 1
Room Introduction x Article Selection

Room	Definite	Indefinite
<u>Cocina</u> 'Kitchen'	16	0
<u>Sala</u> 'Living room'	15	0
<u>Baño</u> 'Bathroom'	12	11
<u>Dormitorio</u> 'Bedroom'	17	5
<u>Comedor</u> 'Dining room'	11	2
<u>Sala de familia</u> 'Family room'	0	4

Table 1 (continued)

Room	Definite	Indefinite
<u>Garaje</u> 'Garage'	2	9
<u>Lavandería</u> 'Laundry room'	1	7
<u>Oficina</u> 'Office'	1	5
<u>Corredor</u> 'Hallway'	0	12

In pairing second mentions of rooms (given information) with article selection, we find that all repetitions, as expected, follow the examples given in (4) above and utilize the definite article.⁵

To summarize the data: in layout discourse in Spanish, first mentions of rooms are generally made with the subject NP in post-position. Second mentions are made with the same NP in pre-verbal position. While the definite article only is used for second mentions of rooms, both the definite and the indefinite article can be used for introducing a room into the discourse. The problem to be resolved is the apparent inconsistency in which speakers pair NPs in post-position with either article.

Before proceeding with the general discussion, it is necessary to clarify a set of terms which has caused confusion in the writings on information structure in discourse. As developed by Mathesius and his disciples of the Prague School, known information has come to be interpreted as the theme of a sentence, while new information has been traditionally associated with the rheme of the sentence (Firbas 1966, 268). With the exception of Suñer (1979), research on Spanish discourse has accepted the Prague School custom of pairing theme with given information and rheme with new information (see especially Contreras 1976). Suñer, on the other hand, follows Halliday (1967) in distinguishing thematic structure from information structure. According to Halliday (1967, 205), theme/rheme structure pertains to the realm of the clause, and given/new information forms part of the discourse structure. For Halliday, theme always precedes rheme and serves as the psychological subject of the clause; it is 'the peg on which the message is hung' (Halliday 1970, 161). Theme/rheme are independent of given/new and can be determined on the basis of isolated clauses without reference to the remainder of the discourse. To be sure, the thematic structure of a clause may coincide with its information structure. That is, the theme of

a sentence may reflect known information and the rheme may signal new information, as in example (1) above.

As Suñer points out, the pairing of theme with given information and rheme with new information is not a necessary condition of Spanish sentence structure. Out of context, it is not possible to determine which elements of (5b) constitute given and new information. But as an answer to the question posed in (5a), it is clear that the rheme of (5b) repeats information given in the question:

(5)

- a. En la reunión de anoche, ¿estaba Paco?
'Was Paco at last night's meeting?'
- b. Sí, estaba Paco.
'Yes, Paco was there'.

I follow Halliday and Suñer in differentiating thematic structure from information structure. Since my major concern is with the information structure of layout discourse, I shall dispense with the use of theme/rheme and continue to refer to information content in terms of given and new.

Linde and Labov (1975) distinguish between what they term 'major rooms' and 'minor rooms' in layout descriptions. Major rooms are obligatorily present in layout discourse and include kitchens, living rooms, dining rooms, and bedrooms. Minor rooms, on the other hand, are optionally present in a layout and include studies, family rooms, laundry rooms, and garages.⁶ Linde and Labov found that bathrooms are marginal rooms with regard to their designation as either major or minor rooms. The category to which bathrooms are assigned depends largely on the size of the room. From Table 1 it can be seen that the respondents most often opted for the definite article when introducing major rooms and preferred the indefinite for the introduction of minor rooms.

According to Chafe (1976), in addition to its function as a signal of known information, the definite article also serves to introduce new information into a discourse. An example of this function of the definite article in English cited by Chafe (1976, 43) is given in (6):

(6)

I spoke with the carpenter yesterday.

If Chafe's contention is correct, it could be claimed that all first mentions of rooms in layout discourse do indeed constitute new information, since the definite article can play a dual role in encoding information. But this does not solve the riddle of why some NPs co-occur with a definite article, while others are modified by indefinite articles. Surely, the definite/indefinite

alternation cannot be in free variation!

The fact that Chafe assigns a dual function to the definite article results from his interpretation of the nature of given and new information. Halliday (1967, 211) defines new information as that which is not recoverable from the preceding discourse anaphorically or situationally. Chafe (1976, 121), however, objects to Halliday's inclusion of the term 'recoverable', because he claims that it imparts the impression that the hearer is coerced into performing some sort of recovery operation during a conversation. Consequently, Chafe redefines given/new in terms of the information present in the hearer's consciousness. What the speaker assumes to be in the hearer's consciousness is given information; what he assumes not to be in the hearer's consciousness is new information (Chafe 1974, 112).

Chafe contends that ordinarily the speaker assumes a referent is present in the addressee's consciousness as a consequence of prior mention in the discourse. This mode of establishing givenness, exemplified in (2), is usually referred to as linguistic anaphora (Kempson 1975). Chafe also allows for the establishment of givenness by speaker-assumptions regarding extra-linguistic factors. He points out that an individual observing a guest admiring a painting might well utter the sentence given in (7):

(7)

I bought it yesterday.

where 'it' is the linguistic reflex of the speaker's judgement that the painting is in the hearer's consciousness. Following Chafe's argumentation, in uttering (6) the speaker assumes a lack of conscious awareness of the referent of 'carpenter' on the part of the hearer, since there is no apparent linguistic or non-linguistic anaphora present.

Kempson (1975, 77) proposes a line of reasoning which opposes that of Chafe. She maintains that whenever the definite article is not used in a linguistically anaphoric way, the implication is that the hearer knows of the existence of the referent in question. In essence she assumes a much broader pragmatic framework for discourse than does Chafe. According to Kempson, when a linguistically anaphoric relationship is present between referents in a discourse, the use of the definite article is obligatory (i.e., predictable). In the absence of linguistic anaphora, however, its use is optional. If the speaker is obeying Grice's co-operative principle and uses the definite article, he must be conveying some extra information (Kempson 1975, 177). The feature [+def] does not have a semantic interpretation, therefore, the information that is imparted by the definite article in an optional environment is the same as in the obligatory environment (Kempson 1975, 177). The implication of introducing the [+def] feature into an optional setting is that the

hearer knows the referent to which the speaker is referring. Kempson (1975, 178) summarizes the implications of definite article usage by the speaker as follows:

- i. he believes there is an object that he is referring to;
- ii. he believes the hearer knows what he is referring to;
- iii. he believes that the hearer believes that there is such an object independent of the utterance.

In the absence of linguistic anaphora, a proposition introduced by the definite article is part of what Kempson calls the Pragmatic Universe of Discourse shared by the speaker and hearer.

For this author to utter (6), the situation would have to be such that 'carpenter' comprised part of the pragmatic universe of discourse shared by me and my interlocutor. For instance, if the carpenter had been contacted to do some remodeling, I would expect my interlocutor to be able to recover this information from his memory. Moreover, I would not anticipate a response such as that given in (8a), which mirrors some degree of surprise, although (8b) would be quite appropriate:

(8)

- a. ?Why? What's wrong?
- b. What did he have to say?

In fact, (8a) appears to be a much more appropriate response to (9), the uttering of which assumes no prior knowledge on the part of the hearer with regard to the existence of the carpenter:

(9)

I spoke with a carpenter yesterday.

It seems clear that the only new information which may be imparted by (6) is the entire act of speaking with the carpenter.⁷

To conclude the immediate discussion: it would appear that speakers form their judgements on the nature of information as given or new on the status of knowledge in the hearer's memory (Halliday's position) rather on its status in the hearer's consciousness (Chafe's position). This means that in deciding whether or not a piece of information is given or new, the speaker takes into consideration a much broader pragmatic universe of discourse than that proposed by Chafe.

In layout discourse, the fact that major rooms (kitchens,

living rooms, dining rooms, bedrooms) are obligatory in the discourse, means that the speaker can assume the addressee expects to find such rooms in the description. The speaker in effect forms a judgement predicated on the shared pragmatic universe of discourse that the hearer has prior knowledge of the existence of major rooms in his memory. The speaker reflects this judgement in linguistic structure by introducing major rooms into the discourse with the definite article. Since minor rooms (laundries, dens, offices, garages), on the other hand, are optionally present in a layout, the speaker cannot assume that these rooms are present in the pragmatic universe of discourse. Consequently, he treats these rooms as new information and introduces them into the discourse with the indefinite article.

The evidence presented in this paper indicates that Spanish speakers construct a layout discourse on the basis of a bipartite judgement. One aspect of the judgement is formulated with regard to the narrow context of the discourse itself and is reflected in linguistic structure by the syntactic position of the NP containing the label for a particular room. First mention of all rooms is made with the NP in post-verbal position; second mention of all rooms is made with the same NP in pre-verbal position. The second part of the judgement is carried out with respect to assumptions about the broader extra-linguistic context or pragmatic universe of discourse shared by speaker and hearer. The speaker assumes that knowledge of the existence of certain rooms (i.e., major rooms) is present in the hearer's memory: this assumption is encoded into linguistic structure by the use of the definite article with the introduction of major rooms. He likewise assumes that the addressee cannot possess knowledge of the existence of other rooms (i.e., minor rooms): this assumption is signaled in linguistic structure by the use of the indefinite article for the introduction of minor rooms.

As a final point, I would like to consider briefly what Suñer (1979) calls the 'on stage' effect of the loc+estar+NP pattern in Spanish. Suñer concludes that 'estar sentences with indefinite [*italics mine*] subjects re-create a scene and convey an "on stage" impact. Due to this vividness, they appear to our senses and to our imagination. . . .' She points out that the prime candidates for estar messages are concrete rather than abstract NPs. For instance, of the following sentences, (10a) would be appropriate while (10b) would not:

(10)

- a. Muchas personas estaban en la reunión.
'Many people were at the meeting'.
- b. *Muchas ideas estaban en su mente.
'Many ideas were in his mind'.

In light of the evidence from layout descriptions, it seems likely that definite articles can also be used for creating the 'on stage' effect. It would be incongruous for a speaker to 'on stage' una lavandería and not do the same for la cocina. It may

very well be that in at least one type of discourse, layout descriptions, the 'on stage' effect is created not by article selection but by the loc+estar+NP pattern itself. Certainly, further research is called for on this intriguing phenomenon.

Notes

¹The most concerted effort to investigate information structure in language has been carried out by the disciples of the Prague School of linguistics. The first scholar of the Prague tradition to study the process by which information is encoded into linguistic structure was Mathesius. Perhaps the most noteworthy contemporary scholar to carry on the work begun by Mathesius is Jan Firbas.

²In addition to word order, Spanish, like English, makes use of prosodic stress to introduce new information. Normally, a new bit of information appears in post-position and is marked by heavy stress. This does not preclude the possibility of new information being introduced in initial position, provided that the element imparting the new information carries primary stress within the sentence. Bolinger (1954-55, 48) points out that an additional response to the question cited in (1a) is El cartero los dejó olvidados 'The mailman forgot them'.

³Dubsky (1960) does not agree with the general postulate on article selection in Spanish. This is because it is possible for a NP to appear in post-position with the definite article as a modifier (exactly the case found in layout discourse), as in uno a uno eran dirigidos los toros 'one by one the bulls were led'. Dubsky supports the position that thematic structure is the same as information structure. As we shall discuss, however, such is not necessarily the case.

⁴The present study was in fact inspired by a similar study conducted on English by Linde (1977). Her conclusions vary from those to be presented here, since English does not have the subject/verb ordering possibilities of Spanish.

⁵Linde (1977) found three instances in English layouts in which first mention was made with the definite article and second mention was made with the indefinite article. She believes such aberrations represent mistakes in which the respondents lost the thread of the descriptions.

⁶Actually Linde and Labov do not include 'garages', 'laundries'

and 'family rooms' in their categorization scheme, since their study was based on apartment layouts. Also, they include 'dining room' as a minor rather than as a major room, because of the nature of the apartments reported in their project.

The majority of the respondents participating in the present study lived in houses and were middle- and upper-middle class residents of their respective communities. As a result, it is quite normal for these individuals to expect a dining room to be a central room in a house layout. Social class may certainly prove to be as important a variable in discourse analysis as it has proven to be in sentence analysis.

⁷As Halliday (1967, 208) observes, an entire sentence may represent new information. That is, (6) would be an appropriate response to the question 'What happened?'

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THE VARIABLE STRUCTURE OF THE FIFTEENTH-CENTURY RONDEAU

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One of the much loved poetical forms in French-speaking courtly circles of the fourteenth and fifteenth centuries was the rondeau. It was in its origin a song form, that is, a coordinated structure of words and music. The words to such a song had of course to be composed within the constraints imposed by the form of the song, so that, even after the words had become separated from the music to function simply as a poem, the song structure continued to exert its influence.

The music structure consisted of two parts of about equal length; if we call these sections X and Y, the musical pattern is XY X X XY XY. The poetry has to be written in strophes to fit this pattern: a long strophe to fit the XY sequence, two short ones for the X's, two more long ones for the remaining XY sequences. The basic strophe of a given poem may consist of two lines, in which case line 1 is sung to musical section X, line 2 to Y; or, if the basic strophe consists of three lines, ll. 1 and 2 are sung to X, line 3 to Y, and so on (Fig. 1).

	distich	tercet	quatrain	cinquain	sizain
X	1	1-2	1-2	1-3	1-3
Y	2	3	3-4	4-5	4-6

Figure 1. The basic strophe, in its relation to the music.

The poetical convention of the rondeau is to have as the first distich, tercet, quatrain, or whatever is basic to the particular poem, the refrain, whose words will be taken up again, twice: first in the middle of the poem, then again at the end. The middle refrain corresponds to the first musical section X, and the final refrain repeats all the words of the initial refrain, sung to XY (Fig. 2).

R	s	r	S	R'
XY	X	X	XY	XY

Figure 2. Poetical structure of the rondeau, as fitted to musical structure. R = refrain, s = short strophe, r = middle refrain, S = long strophe, R' = final refrain.

The rhyme scheme is based on only two rhymes, a and b. The most used patterns are shown in Fig. 3. The basic strophe is divided to correspond with the musical sections at the point where the rhyme changes, that is, at the end of the first line to end with the b-rhyme.

distichs	R 1-2 A/B	s 3 a	r 1' A	S 4-5 a/b	R' 1"-2" A/B
tercets	R 1-3 AB/A or AB/B	s 4-5 ab	r 1'-2' AB	S 6-8 ab/a or ab/b	R' 1"-3" AB/A or AB/B
quatrains	R 1-4 AB/BA	s 5-6 ab	r 1'-2' AB	S 7-10 ab/ba	R' 1"-4" AB/BA
cinquains	R 1-5 AAB/BA	s 6-8 aab	r 1'-3' AAB	S 9-13 aab/ba	R' 1"-5" AAB/BA

Figure 3. Line numbering and rhyme schemes. Rondeaux of more than five lines per basic strophe are apt to vary as to rhyme scheme. The virgule (/) designates the point of division between musical sections X and Y.

We adduce as an example the rondeau of Alain Chartier, "Triste plaisir et doloureuse joye." The music to this lovely, if lugubrious, rondeau was composed by Binchois.

- R 1 Triste plaisir et doloureuse joye,
 2 Aspre douleur, resconfort ennuyeux,
 3 Ris en plourant, souvenir oublieux
 4 M'accompaignent, combien que seule soye.
- s 5 Embuschez sont, affin qu'on ne les voye,
 6 Dedans mon cuer en l'ombre de mes yeux
- r 1' Triste plaisir et doloureuse joye,
 2' Aspre douleur, resconfort ennuyeux.
- S 7 C'est mon tresor, ma part et ma monjoye
 8 De quoy Dangier est sur moy envieux.
 9 Bien le sera s'il me voit avoir mieulx
 10 Quant il a dueil de ce qu'Amours m'envoye.
- R' 1" Triste plaisir et doloureuse joye,
 2" Aspre douleur, resconfort ennuyeux,
 3" Ris en plourant, souvenir oublieux
 4" M'accompaignent, combien que seule soye.

1, 1', 1". Tris- te plai-
5. En- bus- chés
7. C'est mon tre-

-sir et do- lo-reuse joy-
sont ar- fin qu'on ne les voy-
-sor, ma part et ma mon- joy-

--- e 2. As- pre dou- leur, res- con- fort en- nuy- eux, 3. 3. Ris en plou-
--- e 6. De- dan- mon cuer en l'em- bre de mes yeux.
--- e 8. De quoy Dan- tier est sur- moy en- vi- eux. 9. Rien le se-

-rant, sou- - ve- nir ou- bli- eux 4, 4. M'ac- - com- pai- gnent com- bien.
-ra s'il ne voit a- voir mieulx 10. Quant il a d'ueil lide ce

que seu- le soy- - e.
qu'a- mour a'en voy- e.

The composition of the refrain offers special problems not characteristic of just any four-line sequence, such as the long strophe. The poet's first problem is to devise a refrain that will separate nicely into two parts, the first of which will be either an autonomous sentence or will fit into a grammatical construction with the preceding or the following strophe. These two types of refrain are called "autonomous" and "integrated", respectively. In the early history of the rondeau, the refrain was always autonomous and often had only the vaguest semantic connection with the surrounding words.

This poem of Alain Chartier, once divested of music, could be read perfectly well without any repetition of refrain at all. Sad pleasure and painful joy, / Bitter sweetness, distressing comfort, / Laughter in tears, forgetful memory / Accompany me, though I am alone. / They are hidden, that none may see them, / Within my heart, in the shadow of my eyes. / It is my treasure, my portion and my precious store, / For which Danger is envious of me, / As he will be, if he sees that I have better, / When he has only grief for what Love sends me.

Danger is a much-used allegorical figure, representing all obstacles to the satisfaction of amorous desire. The poet's amatory success will of course make Danger very unhappy.

Since, in this poem, each strophe is a closed syntactic and semantic unit, there is no real need for any repetition of the refrain. In fact, if there is no such repetition, the first stanza does not even deserve to be called a refrain, which is, by definition, something that is repeated. And yet the song structure requires the repetition of the first two lines after the short strophe and of all four lines after the long strophe. So we shall have to examine the poem to see if it will tolerate these repetitions.

Now the short refrain is not a sentence: it is a sequence of four nouns, each with its oxymoronic adjective; therefore it cannot be autonomous, except as a rather dreary, automatic repetition of a refrain without much regard for its context. But just such refrains belong to the tradition of the rondeau. In the earliest examples, several centuries before the one under consideration, they were sometimes just nonsense syllables for the crowd to join in on, like our fa-la-la or ta-ra-de-BOOM-te-ay. And, considering that the short strophe is a complete sentence, with an implicit subject to the verb sont of l. 5, the noun groups of the middle refrain could be repeated in the same spirit. However, by the fifteenth century, the rondeau was no longer the popular combination of simple ditty, song, round dance, and game that its rustic ancestor had been; it was rather a highly self-conscious art form, sung usually by one voice, with an instrumental accompaniment in the two or three other voices of a sophisticated polyphonic composition. The poem itself had become a courtly pastime, produced by poets, not by poet-musicians, these poets being the companions, friends, peers and parasites of the duke or king whose court they frequented, vying with each other in pleasant conceits and ingenious tricks of versification.

All through the fifteenth century there were two lines of retreat from the autonomous refrain: one towards the integrated

refrain, the other towards the shortened refrain. The fact is that the autonomous refrain had come to be perceived as dull, and those poets were deemed most clever who managed to integrate their refrains; this evaluation is documented in the works of contemporary theorists (Fabri, Sebillet, for example). If we look again at the poem by Alain Chartier, we see that the middle refrain provides an explicit subject for the Embuschez sont of l. 5. In its turn, the final refrain can be seen as a complete sentence, for we have already read the long strophe as an independent sentence. But that interpretation does not satisfy the growing taste of the period for something a little more imaginative than a witless repetition.

We translated l. 10 as "When he has only grief for what Love sends me." But de ce que can also mean "from the fact that, because". The latter meaning is obviously inapplicable to the sentence that ends with the long strophe, but if we take any noun or nouns from the final refrain as objects of the verb envoie, we get something like "When he has only grief from the fact that Love sends me sad pleasure and painful joy." This can only accentuate the notion that he is indeed enviable who has the Sad pleasure and so on that Love sends him. As ill-disposed as Danger may be to the lover, it is no satisfaction to him that the lover suffers the pain of love. If ll. 1"-2" are thus integrated to the long strophe, ll. 3"-4" make a new and satisfactory ending to the whole poem—or the last sentence may just as well be ll. 2"-4".

As the rondeau progressed through history from shorter to longer strophes, the repetitions of the refrain became more and more onerous, more likely to bore the hearers. As long as it was sung, it was of course necessary to sing it in full. But there were also occasions when recitation in speaking voice was more appropriate than the singing voice, with the accompanying counterpoint, as Eustache Deschamps tells us in his treatise on versification, L'Art de Dictier; he says, and this is my rough translation: "and also the words of the songs can often be recited in many places where they are gladly heard, where the singing of the music . . . would not be appropriate (as between gentlemen and ladies in private and secretly), where poetry can be said and recited by a man alone; or to read some book of these pleasant things to an invalid, and other such cases where singing would not be appropriate because of its loudness and the triplicity of voices for tenors and contratenors necessary to produce the song as perfectly as may be." The full realization of a song as polyphonic is seen by Eustache as essential to its adequate production. Better no music at all than the melodic line of the singing voice alone.

When the rondeau was recited, there was a tendency to skimp on the redundant refrain (if you've heard it once, no need to hear it again, seemed to be the prevailing thought). This practice may have been inspired by the habit of scribes who, in the song books of the time, never repeated the refrains in full, but indicated the places of the middle and final refrains by the first words of the refrain, followed, usually, by the familiar abbreviation for et caetera. Certainly, when one reads a poem nowadays, even if the refrains are printed out in full, one usually skims over the refrain without really reading it, to seek out the next batch of new

material. So there grew up, in response to the threat of causing boredom through full repetitions, a poetical practice of reducing the refrain to a single line, repeated after the short strophe, and then once more after the long strophe. To be maximally effective, this one-line refrain should be integrated at least semantically to the preceding material (or, much less often, to the following strophe), and preferably with changing meanings as it appears in different contexts.

Of these two ways of responding to the possible tedium of hearing a too-predictable and rather long refrain—the integration of the full refrain, and the reduction of the refrain to one line—the latter won out completely over the full refrain, but only after more than a century of competition between the two.

Our next step, then, is to look once again at the Chartier poem, to see if its refrain is capable of being shortened. But first, a slight qualification to the foregoing. There were two kinds of refrain-shortening practiced during the fifteenth century: that of the final refrain alone, and that of both the middle and final refrains. It seems there was no practice of shortening the middle refrain without also shortening the final refrain, although I have seen editions and translations that presuppose this treatment.

So let us see first if we can shorten the final refrain. The answer is yes, for we have just seen that Triste plaisir et dolo-
reuse joye functions as direct object to the verb envoye. This shortened refrain has to be integrated, since it would make no sense at all to see l. 10 as the end of its sentence, with the one-line refrain tacked on.

Now for the middle refrain: can it be shortened to one line? Again, yes, for Triste plaisir et dolo
reuse joye can function as compound subject to the plural verb of l. 5. Just as in the case of the final refrain, the middle shortened refrain must be regarded as integrated: if the short strophe were considered as a complete sentence, the one-line, middle refrain would have no function.

The question may arise, which is the correct reading? I wish to propose here the notion that the poets of the fifteenth century deliberately crafted their rondeaux in such a way as to fender them readable in several ways.

If, as Eustache Deschamps says, a reader may choose either to sing or to recite a given poem, he may well have other choices open to him: I. to read it without repetitions; II. to read it with full refrains—and in so reading it, to interpret the refrains as being autonomous or integrated; III. to read it with the final refrain shortened to one line; or, IV. to read it with both middle and final refrains shortened to one line. In the course of preparing my article on the fifteenth-century rondeau as an aleatory polytext for a forthcoming number of Le Moyen Français, I examined the 23 rondeaux of Alain Chartier, the 69 rondeaux of Christine de Pisan, the 30 rondeaux of the Mellon Chansonnier (ed. by Leeman L. Perkins and Howard Garey, New Haven: Yale University Press, 1979), and a considerable number of the Rondeaux and Chansons of Charles d'Orléans. I found that different poems were susceptible of different combinations of possible readings. I used tables in this

form: columns headed by I, II, III, IV, to represent the four readings just described, a line for each poem considered, with plus signs for possible readings, minus signs for impossible or very unlikely readings. In order to gather meaningful statistics on these combinations, I labeled them with the first sixteen letters of the Greek alphabet, from alpha to pi, to designate the combinations +++, ++-, +++, +-+ . . . ----. I call each of these combinations a polytext: to any particular rondeau, one of the 16 polytexts must apply, specifying which of the four possible readings may and which may not enter into the realization of the poem. The choice is in the hands of the reader, who is restricted only by the minuses that occur in the polytext of the poem. The singer, of course, does not have any choice in the matter: only reading II is allowed. Put another way, the reader chooses, each time he reads the poem, from among the readings (the pluses) offered him by the polytext of that poem. Put still another way, the polytext determines the texteme, and each of the pluses in the polytext represents one of the allotexts.

Here are some of the results of my counting: α (++++) is the commonest polytext for the three sources of which I made an exhaustive count. For the three collections averaged together, α accounts for 65% of the poems, δ (++-) for 12%, ι (-++) for 18%, λ , μ , and ν represent only traces in this corpus; the three of them together account for 3.3%. Of the sixteen hypothetical polytexts, then, six are actually found in our corpus. Let us look at each for its meaning. α can be read in all four ways; ι (-++) means that refrains are essential, but may be either full or shortened to one line; μ (-+-) means that full refrains are the only possibility; λ (-++) that the refrain is indispensable, full refrains are possible, but that one (the final) or both must be shortened. The detailed comparison of Alain Chartier, Christine de Pisan, and the Mellon Chansonniere appears in Fig. 4.

Alain (23) + Christine (53*) + Mell (30) = "Corpus"				
α ++++	70%	55%	70%	65%
ι -+++	4%	30%	20%	18%
δ ++-	22%	4%	10%	12%
μ -+-	4%	4%	0	
λ -++	0	4%	0	3.3%
ν ---	0	2%	0	

Figure 4. Polytexts of Alain Chartier, Christine de Pisan, and the Mellon Chansonniere, expressed as percentages of the rondeaux of each. *Christine wrote 69 rondeaux, of which 66 are isometric, from which we subtract the 13 rondeaux à distiques, to which reading IV would not apply, since r would consist of one line whether full or shortened.

These figures show that Alain Chartier is bound by two rules which do not constrain Christine de Pisan: (1) Readings III and IV are always ++ or --; that is, if the final refrain can be shortened, so can the middle one; and if the middle refrain cannot be shortened, neither can the final one. Compare this with Christine, with her xx-+ (λ -++). (2) For readings I and II Alain has only ++ or --; ++xx means that the refrains can be dispensed with, but whenever refrains are used they are always at least capable of being read as full. Compare this with Christine, whose poem in $\vee$ (-++) is an instance of a refrain, the final one, that must be shortened.

From these and other considerations which I have had neither time nor space to present fully here, I draw the following conclusions. The courtly poets of the fifteenth century designed rondeaux to be realized in any of one to four different ways. That flexibility, far from being a lack of system, is itself systematized. The multiple reading, or polytext, is in full accord with the spirit of play that was developed to such a high degree by the grands rhétoriciens just a few decades later, when the aleatory principle was exploited to the limit of their ingenuity. Examination of the polytexts and their frequency in the works of different poets can reveal differences in temperament and style that would be less apparent without resort to this kind of analysis. Alain emerges as quite clearly conservative; in contrast to Christine, he never writes a rondeau that excludes the possibility of being set to music—he must have kept in mind at least the possibility of its being performed as a song. Christine's interest seems to veer towards making sure that the refrain can be shortened; adding together α and ι accounts for 74% of Alain's rondeaux, and 85% of Christine's; whereas, adding together the polytexts that do not allow shortening of one or both refrains, δ , μ , and λ account for 26% of Alain's, 12% of Christine's. And whereas Alain has not a single rondeau that does not tolerate a full refrain, Christine has at least one, with polytext $\vee$ (-++). One hundred per cent of both Mell and Alain at least permit full refrains—although, in a small number of cases, that is clearly an inferior reading—as against 98% for Christine.

My main goal has been to end the restless search for the "right" reading of any poem, to look, rather, for the possible readings of each rondeau and then, if it seems to apply, to establish some order of merit among them. This critical attitude towards these mobile texts seems much more appropriate to the spirit of the epoch in which they were written than does the stubborn quest for a uniquely possible poetic text.

SEMANTIQUE ET INTONATION

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Le discours oral spontané transmet des informations qui excèdent quantitativement et qualitativement sa transcription graphique. Une analyse exhaustive de cet apport sémantique a été tentée à partir de 27 secondes de conversation libre dont le texte suit.

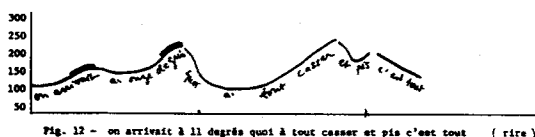
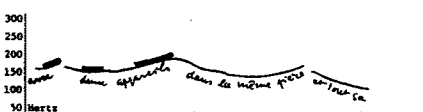
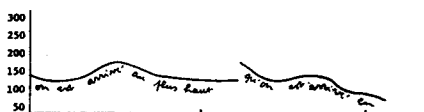
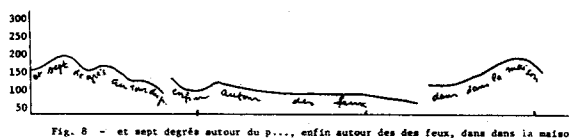
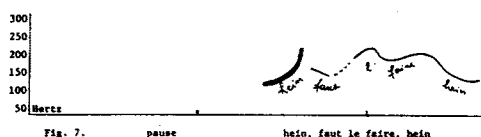
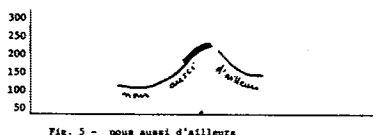
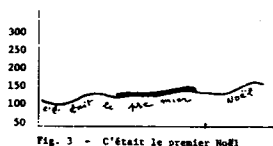
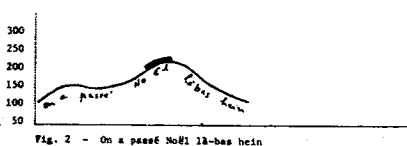
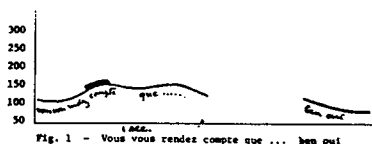
Texte.

Vous vous rendez compte que... ben oui, 2 on a passé Noël là-bas hein? 3 C'était le premier Noël, 4 d'ailleurs les enfants i(ls) étaient heureux quoi... 5 nous aussi d'ailleurs... 6 mais... on avait... trois degrés dans les chamb(r)es... hein. 7 Faut l(e) faire hein?... (rires)... 8 et sept degrés autour du p., enfin autour des des feux dans dans la maison 9 on est arrivé, au... p(l)us haut qu'on es(t) arrivé en... 10 avec euh deux appareils dans la même pièce et tout ça, 11 pa(r)ce qu'on avait invité des amis, 12 on arrivait à onze degrés quoi à tout casser et p(u)is c'est tout. (Rires aspirés).

Ces 27 secondes de texte ont été enregistrées au spectrographe et c'est sur le spectrogramme qu'est basée essentiellement la conduite de l'analyse. Ont été prises comme unité les séquences relativement larges déterminées par les changements mélodiques repérables à l'analyse spectrographique et à l'audition, coïncidant avec les groupes sémantiques. Le schéma mélodique reproduit ici est un tracé épuré et simplifié afin d'en faciliter la lecture. Les chiffres représentent les hertzs indiquant la hauteur mélodique, la ligne de base pour l'abscisse étant fixée pour tous les schémas à 50 Hz. L'épaississement du trait représente une augmentation d'intensité marquée par rapport aux autres syllabes du groupe. Cette augmentation étant relativement constante d'un groupe à l'autre il n'était pas essentiel de raffiner la projection.

L'enregistrement a été par ailleurs auditionné par un groupe témoin de Français qui ont répondu à une série de questions. Ce sont les réponses à ces questions qui ont permis d'élaborer le profil psychologique et social du locuteur. Le groupe témoin a reconnu en lui un Parisien appartenant à la classe sociale plutôt défavorisée, ayant reçu une instruction primaire. Les valeurs culturelles qu'il lui a attribué sont le sens de la famille et de l'amitié. Du point de vue psychologique les témoins l'ont jugé comme un homme modeste, honnête, ayant aussi bien le sens de l'humour que celui de la rhétorique.

En comparant ce "portrait" au texte écrit on s'aperçoit qu'un bon



nombre de ces informations n'ont pas été formulées au plan lexico-syntaxique. Néanmoins elles ont été encodées et décodées, ce qui, en bonne logique, suppose un code. C'est le mécanisme de ce code que j'ai tenté d'élucider en confrontant les données du questionnaire et l'analyse spectrographique.

Le locuteur est Parisien.

Grassement du R: (1) Vous vous rendez compte (4) heureux d'ailleurs (9) arrivé.

Palatalisation du K: (1) que (10) avec

Allongement de voyelles: (1) que (6) hein (8) feu

(11) invité, amis.

Accents expressifs répétés: toutes les syllabes en trait épais (17 au total).

Le locuteur appartient à la classe plutôt défavorisée.

Le consensus du groupe s'est fait à ce sujet à partir du message référentiel et sur des bases culturelles communes. En effet aller passer Noël dans une maison difficilement chauffable avec des enfants et des amis est l'indice d'une situation financière médiocre quand les sports d'hiver par exemple se pratiquent maintenant à de nombreux degrés de l'échelle sociale. Mais pourquoi le groupe n'a-t-il pas reconnu par exemple un individu en mal de "naturel", un écologiste déterminé? Si cette possibilité n'est pas apparue dans les réponses c'est qu'à la perception l'énonciation du locuteur a été décodée comme celle d'un homme d'instruction primaire (cf. ci-dessous) et que les présupposés culturels associent niveau d'éducation, classe sociale et mentalité.

Le locuteur a reçu une éducation primaire.

Structures syntaxiques fragmentées: (9) "on est arrivé" commande la structure avec conjonction + infinitif: arriver à. Eprouvant une difficulté à manipuler cette construction il s'interrompt et reprend la structure en introduisant d'abord un superlatif "au plus haut que". Pour la seconde fois le syntagme est suspendu par l'amorce d'un gérondif amenant une circonstance accompagnant le verbe, vraisemblablement "en utilisant deux appareils" mais il abandonne à nouveau ce syntagme verbal, à la recherche, pendant une pause très longue (0.85 sec.), d'une structure plus économique (10) "avec deux appareils dans la même pièce et tout ça." Il introduit alors une incise circonstancielle (11) pour arriver à la formulation définitive de l'unité 12 "On arrivait à 12° quoi à tout casser et puis c'est tout."

Libertés grammaticales: (9) usage de l'indicatif au lieu du subjonctif après la locution superlative. (2, 6, 9, 11, 12) on remplace nous.

Chutes de phonèmes: (4) i(ls) (5) chamb(res) (11) pa(r)ce que (1) b(i)en (12) p(l)us.

Absence de liaison: (4) i(ls) étaient (5) nou(s) aussi (9) on es(t) arrivé.

Imprécision du vocabulaire: (8) autour du p(oêle) autour des

feux. (10) deux appareils. (6) chambres (8) maison (10) pièce.

Usage de clichés: (1) vous vous rendez compte que. (2) faut le faire. (12) à tout casser, et p(u)is c'est tout.

Usage d'interjections: (1) ben oui (2) hein (3) quoi (6) hein (12) quoi.

Répétitions: (2) (3) Noël. (4) (5) d'ailleurs. (7) (9) (12) arrivé.

Hésitations: (8) des des dans dans. (9) au, en. (10) euh.

Intonation: Le schéma mélodique final montant en phrase assertive est très fréquent dans la conversation. On le reconnaît en général comme indiquant que le locuteur escompte la prise en charge par son allocutaire de la fin de l'idée au plan sémantique. Par exemple dans l'unité 3 "C'était le premier Noël" suppose la subordonnée "qu'on passait là-bas". C'est cette même impression de sollicitation que transmet le sommet de hauteur à 200 Hz (le précédent et le suivant n'étant qu'à 150) sur Noël dans l'unité 2. Cette quête répétée d'approbation est décodée comme un manque d'assurance.

Les valeurs culturelles du locuteur.

L'énoncé communique en clair l'importance de Noël et de la famille. Mais c'est l'agencement structural des syntagmes intonatifs et des pauses qui les dénote non comme des faits mais comme des valeurs. Dans les unités 3 et 4 les lexèmes Noël, enfants, heureux génèrent l'idée du bonheur par le réseau sémantique traditionnel qu'ils constituent au sein de la culture occidentale moderne. La transposition valorisante se fait par les montées intonatives sur heureux et aussi, par l'intensité sur enfants et heureux. La pause relativement longue (0.50 sec.) qui ne comporte aucun signe vocal d'hésitation est sémantisée par la locution adverbiale d'ailleurs. Cette pause joue un rôle conjonctif en établissant un rapport de cause à effet entre le bonheur des enfants et celui des parents, relation renforcée par la courbe mélodique symétrique de heureux et aussi, le décodage de l'unité ne s'opérant que dans un rapport de mémoire acoustique avec les unités précédentes.

C'est par un enchevêtrement tout aussi complexe de syntagmes de paramètres intonatifs que le locuteur traduit le prix qu'il attache à l'amitié dans les unités 10 et 11 "avec euh deux appareils dans la même pièce et tout ça parce qu'on avait invité des amis". Réduit à l'écrit ce message tend à être interprété comme suit "deux appareils dans la même pièce, et tout ça parce qu'on avait invité des amis" et tout ça étant une ellipse pour "nous avons fait tout ça (parce qu'on avait invité des amis)".

Mais à l'audition et tout ça est décodé comme cliché récapitulatif terminant la série des tentatives faites pour augmenter la température "deux appareils dans la même pièce et tout ça". C'est la courbe descendante à fonction fermante qui est responsable de cette sémantisation. Le pa(r)ce que n'implique donc pas ici une relation conjonctive mais démarque une intention exclamative que la montée spectaculaire sur amis établit. La translation d'un lexème d'une catégorie grammaticale à une autre

n'est pas un phénomène nouveau (voir "combien" "que" et plus près de nous "ce que") mais il est intéressant de saisir le phénomène sur le vif par le moyen de l'intonation au moment où son usage est encore ambigu.

Profil psychologique du locuteur.

Modeste: L'interjection quoi à la fin de l'unité 4 est dite sur un ton plus bas que le reste de la phrase avec une remontée interrogative légère en même temps qu'une baisse d'intensité. Elle est décodée comme une marque d'humilité.

Dans l'unité 8 l'affaiblissement de l'intensité, le nivellement de la courbe mélodique liés à la difficulté de trouver le mot exact pour désigner les sources de chaleur traduisent l'aveu de son impuissance à lutter.

Le cliché récapitulatif de clôture d'énonciation "et p(u)is c'est tout" conjugué à une descente mélodique et une baisse d'intensité met un terme à son discours de façon simple et discrète. Son rire final est décodé comme traduisant son amusement mais l'aspiration légère qui l'accompagne comme l'indice d'une certaine gêne.

Honnête: La longue hésitation (0.50 sec.) dans l'unité 6 précédant trois degrés marque son souci d'exactitude de même que l'hésitation devant le mot p(oêle) qu'il corrige avec l'adverbe enfin puis avec les termes généraux feux et appareils.

Sens de l'humour: La plaisanterie est déclenchée par l'attaque sur mais à 180 Hz de l'unité 6 (les autres attaques étant autour de 120) ce qui met l'emphasis sur la contradiction entre le bonheur et les conditions matérielles de son vécu. L'unité 7 constituant la réaction à la plaisanterie est remarquablement complexe dans sa charge sémantique comparée à la pauvreté des moyens linguistiques mis en jeu - ...hein, faut l(e) faire hein... (rires). Les quatre éléments: pause, interjections, cliché et rires organisent un réseau de signification dense qu'une glose démêlerait difficilement. Néanmoins plusieurs faisceaux de cognition sont discernables: interrogation et assertion conjugués au plan lexical et au plan intonatif établissent un rapport de connivence avec l'allocutaire, connivence renforcée par l'interjection symétrique à fonction encadrante et le rire partagé. Le cliché, économique au plan linguistique a une valeur intégrative au plan social. Les pauses encadrantes contraignent l'allocutaire à la réflexion sur la situation antithétique froid/bonheur. La plaisanterie filant son dessin mélodique tout au long du propos est perçue par l'articulation légèrement délabialisée et antériorisée propre au sourire. Elle est confirmée par le rire final.

Sens de la rhétorique: C'est par l'usage de la pause que le locuteur semble le mieux atteindre son auditoire. Dans l'unité 1, la pause de 0.60 sec. après le cliché Vous vous rendez compte que posant comme un événement ce qui va être relaté, pique la curiosité de l'allocutaire. La pause entre les unités 4 et 5 permet la réflexion sur le bonheur familial et joue le rôle de conjonction mais avec plus d'efficacité du point de vue affectif que ne le ferait par exemple la conjonction "donc". La séquence capitale que représente l'unité 6 au plan narratif mais on avait trois

degrés dans les chamb(r)es est encadrée par deux pauses permettant d'apprécier la performance mise en vedette par une montée jusqu'à 240 Hz. La pause entre les unités 5 et 6 est bi-directionnelle au plan sémantique. Elle amplifie ce qui vient d'être dit (complémentarité du bonheur dans la relation parent-enfant) et ce qui va être dit, mettant l'allocutaire en état d'expectative. La locuteur use aussi bien de la symétrie au plan lexical. D'ailleurs au début de l'unité 4 et à la fin de l'unité 5 ouvre et ferme une parenthèse introduisant le thème du bonheur "d'ailleurs les enfants i(ls) étaient heureux quoi... nous aussi d'ailleurs..." On a vu que l'interjection hein joue de même le rôle d'encadrement.

Enfin des symétries de paramètres intonatifs sont relevées: hauteur pour heureux (4) et aussi (5) hein et hein (7), intensité pour Noël (2) et premier (3), enfants et heureux (4). La dramatisation par ailleurs s'actualise par les éléments rythmiques. L'unité-clé 6 mais on avait trois degrés dans les chamb(r)es est dite en 2,80 sec. alors que l'unité 11 pa(r)ce qu'on avait invité des amis comptant le même nombre de syllabes l'est en 1,60 sec. Le ralentissement qui peut dans certains cas aller jusqu'à la syllabation est un moyen d'emphase, renforcé ici par la présence de trois accents sur les mots trois degrés et chamb(r)es.

Ce foisonnement de corrélations entre les différents composants de la communication verbale ne doit pas décourager la recherche d'un code dont la présence est attestée par le consensus du groupe témoin. L'expérience répétée un nombre de fois suffisant permettra assurément de dégager les mécanismes entr'aperçus dans cette analyse. D'ici là il semble raisonnable de penser que c'est une intégration complexe et non hiérarchisante des niveaux syntaxique, lexical et phonétique qui produit les effets de sens. Si l'on doit reconnaître le bien fondé au plan heuristique des études clivées comme on les a longtemps pratiquées il serait temps de travailler sur l'ensemble des éléments. Phonéticiens et phonologues ont cherché à établir les contributions qu'apporte le continuum sonore au sens. Mais d'une part c'est trop souvent au niveau de la phrase et non à celui du discours qu'ils opèrent et d'autre part les éléments prosodiques sont présentés en général comme des additions à un message référentiel indépendant. L'intonation de même nature que la musique au plan neurologique, entremêlée dans la pratique langagière avec les éléments linguistiques arbitraires et les éléments paralinguistiques dont on connaît mal le degré de contraignance est un phénomène à la fois psychologique et somatique; objet d'apprentissage c'est aussi un phénomène social. Il est donc rationnel d'envisager l'élucidation de sa fonction et de son fonctionnement dans une perspective panoramique. L'apport des travaux des psychologues serait sans doute très appréciable pour mieux comprendre le rôle des éléments prosodiques au plan perceptif et cognitif ainsi qu'au plan mnémotechnique dans la retention et la récupération d'information immédiate ou différée; mais il faudrait une collaboration plus étroite entre les deux disciplines. De même les études visant à élucider l'intrication de la chaîne des éléments segmentaux et

supra-segmentaux avec la chaîne lexico-syntaxique auraient tout intérêt à suivre, voire à provoquer les recherches des logiciens, des neurologues et des orthophonistes. Le travail présenté ici suggère un autre type de réflexion: c'est que le discours oral spontané n'est pas, comme nous le laissent croire les grammairiens, et les institutions scolaires, un texte dyscrasique. Le "parlé" passe pour une sorte de brouillon de l'écrit dans lequel les "accidents linguistiques" seraient neutralisés par l'usage compensatoire ou emphatique de l'intonation. Le but visé de l'oral serait dans la conscience de tout locuteur une performance digne d'une norme transcendante - l'écrit. Je poserais que, au contraire, c'est parce que l'interaction de tous les éléments génère des effets de sens combinés que la nécessité d'une formalisation finie de la chaîne lexico-syntaxique se trouve annulée. L'oral se porte bien sans l'écrit et l'on pourrait suggérer que c'est peut-être parce que l'écrit s'est trouvé amputé de la substance sonore qu'il a fallu inventer la norme.

Enfin je conclurai cette communication en faisant remarquer que bien qu'exploitées depuis toujours en art dramatique, les productions de sens résultant de la combinaison des éléments référentiels et prosodiques sont négligées des institutions, en particulier de l'appareil scolaire. L'école, à tous les degrés, tend à favoriser les élèves dont la parlure se rapproche le plus des standards écrits et à ignorer ceux qui s'en éloignent, sans vouloir reconnaître et tenir compte des informations qu'ils émettent dans un code différent. La richesse d'un message oral ne se juge pas sur son contenu référentiel et selon des normes n'appartenant qu'à l'écrit.

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THE ETHNOGRAPHY OF SPEAKING AND THE DESCRIPTION OF CONVERSATION

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A set of descriptive components, suggested as useful in describing variability in patterns of speech usage in and between human populations, was first published widely in 1972 (see Hymes 1972; Sherzer and Darnell 1972). The components had been defined primarily by Dell Hymes, who had first suggested a componential system of description in 1964 (Murray 1979), and his students at the University of Pennsylvania during the middle 1960's. By the time of their wider dissemination, which included a rationale for their concatenation, the components had already informed some descriptive studies and had proved useful as data selection criteria in secondary analysis of specific ethnographies.

In that descriptive schema the speech act was a "minimal unit" of both the speech event and, implicitly, of socially contextualized discourse. In fact the level of description which the descriptive components implied seems best described as that of the linguistic or communicative economy of a specific population (i.e., the system of communicative reciprocity and exchange).

The components seem to represent the most readily manipulable notions in the ethnography of communication. They were derived from what Hymes called a descriptive theory. Though they are nowhere specified identically, they are extracted here (from Hymes 1974):

1. Act sequence: message form, message content
2. Act situation: setting, scene
3. Participant: speaker, hearer, audience, . . . etc.
4. Ends: purposes, goals, outcomes
5. Key (tone or manner of message)
6. Instrumentality: channel (visual, written, hummed, etc.), register, language code and variety, speech style
7. Norms: norms of interpretation, norms of interaction
8. Genre

Hymes is clear that the components do not represent a checklist. He says

Ethnographic material so far investigated indicates that some sixteen or seventeen components have sometimes to be distinguished: No rule has been found that requires specification of all simultaneously. There are always redundancies, and sometimes a rule requires explicit mention of a relation between only two, message form and some other. (It is a general principle that all rules involve message form, if not by affecting its shape, then by governing its interpretation.) (1974:54)

There are several problems with the descriptive framework the components characterize. Hymes adumbrates problems, but makes a remarkable claim with his disclaimer: he says that

"at present such a schema can be only an etic, heuristic input to descriptions," but that "later it may assume the status of a theory of universal features and dimensions" (1974:53).

Sherzer (1977) and Gumperz (1977), both of whom are associated with the tradition, have provided critical statements of it. Sherzer said that the literature reflects an ethnography of "speaking," not "communication;" and that descriptions tended not to be of everyday talk, but of formal events. A problem he identified as methodological was that a focus on speaking had neglected the communicative systems that attend talk (e.g., Goffman's "laconicity of talk[:]" the fact that most often in social life it is the unsaid that lies behind the said that must be analyzed" [Sherzer 1977:19]). The tradition appeals, in Sherzer's terms, not to a theory, but to theories about language in such fields as philosophy, linguistics, anthropology and sociology.

Gumperz' criticism was that

the sociological theory underlying ethnography of speaking is basically a structural-functionalist one which suggests that verbal behavior can be described in terms of discrete systems, consisting of analytically separate variables. . . . [T]he questions of how members themselves recognize that an event has taken place, how social inputs vary in the course of an interaction, and how the interpretation of specific messages is affected by social knowledge [are not dealt with] (1977:193).

Additional problems seem to be, first, the retention of the speech act as a minimal descriptive unit. Austin's (1962) concept of the speech act has been central to discussions of language in social context, and Fillmore (1974:V-1) is typical in his definition of syntax (linguistic form); semantics ("the communicative functions which these forms are capable of serving"); and pragmatics ("the contexts or settings in which those linguistic forms can have those communicative functions") as tripartite properties of speech acts. Sadock (1974) has provided a framework in which those considerations may be included in formal grammars of discourse, as those grammars constitute theories of language. The term, speech act, however, is operationally equivalent to the term, sentence; the level of explanation is that of the sentence or speech act in a population of sentences/speech acts.

Sociologists who employ the term, utterance, provide another operational equivalent. Labov and Fanshel (1977), for example, could claim, despite their citing and dealing with utterances which seem, temporally, to predict other utterances, that there is no necessary coherence between utterances.

The second major problem in the ethnography of communication is the imperative to use the components to describe non-random communicative behaviour by specifying rules. This imperative invokes the necessity of specifying a structural description of the necessary conditions for the application of a rule. While extrasentential environments for rule-application refer, perhaps arbitrarily, to sentence boundaries, social contextual boundaries

are not so readily describable. Nor can the criteria for such social contextual boundaries be specified except in the observer's imposition of boundaries on discourse itself.

Additionally, if the data are from natural conversation, the import of paralinguistic cues may not coincide, for example, with an ostensible assertion. If systems of kinesics or etiquette operate simultaneously with speech systems, and they of course do, identical structural descriptions must provide for contradictory communicative components in the specification of contexts for rule application.

The problem of rule specification is compounded by the question of what it is that the rules are said to reflect: the abstract notion of communicative or linguistic competence, competence as a psychological attribute; or an observer's generalizations about what is perceived by him/her or other participants as patterned behaviour. This question is related to Hymes's concern for a redefinition of the notion of competence, to include social context (see, e.g., Hymes 1971, 1973, 1974). But the relationship between a population's "linguistic economy", on the one hand, and competence, variously defined, on the other, remains unspecified and problem-laden. The levels of description which the domains imply are explicable in identical terms, such as the components of speech use, only by a priori definition of an unspecified individual-societal identity.

There is an obvious methodological problem in the naming of the components: one must appeal to different kinds of evidence to distinguish setting, or physical description of the environment, from "scene," or participant-interpretation of setting. In the resolution of "message form" and "message content" there is a similar but compounded problem. In addition to distinguishing between the describer's definition of form, and participants' apprehension of form, the "content" must account for ellipses, implicature and tacit meanings.

What seems to be required in the ethnography of communication are criteria for the specification of descriptive levels. When the sentence, the utterance, the speech act, or the components of the use of speech, define minimum units within discourse in terms of rules, what seems to be required is a coherence principle for discourse.

Despite those problems the components have some valid currency in the description of language use and communicative systems. That they are intuitively at least common-sensical descriptors is demonstrated by their use in secondary analysis of ethnography. The components demand, as was intended, an accounting for a great deal of data: the purview of the ethnography of communication is nothing if not ambitious. Perhaps Sherzer's criticism that the field is theoretically eclectic reveals a need, not for a theory of language, but for a theory of observation which would motivate explicit criteria for the components or hierarchize them.

One such powerful theory is provided by Maturana and Varela in a series of publications addressing the observation of natural systems, including human language (see, e.g., Maturana 1979; Maturana and Varela 1975; Varela 1975, 1976). In order to demonstrate how such a theory might inform the descriptive components I shall use one notion, that of recursiveness in a consensual domain, to reformulate the distinction between (and thus maintain the identity of) "participant interpretation" of a component and "observer-imposed description."

The two biologists define a living system, such as a human being, as an "autopoietic" system, in that its definition refers to its continuous self-realization in terms of organization (not in terms of its components, structure or function, which are attributed by an observer of such a living system); and to its autonomy--that is, it subordinates all changes to the maintenance of its organization. In order eventually to discuss language, it is important to consider the nervous system of the human being to be a closed system, changing its internal state--or not, as the case might be--as a result of perturbations in the medium in which it exists.

Interaction with that medium constitutes a "structural coupling" with the medium, which may include other "autopoietic systems" or human beings. Such interaction specifies a consensual domain. The foregoing observation requires that the observer specify a domain of the internal state of the organism, non-intersecting with a domain of interaction, and further, non-intersecting with the domain from which the observation is made. (It is a property of the appropriate domain, itself, that it specifies its organization, and cannot intersect.) (Further, we operate as though it did.)

The notion of recursion in domains--observing that one observes--is crucial to self-conscious operation in linguistic and communicative domains, which are both the result of specifying recursive consensual domains.

In this scheme, inelegantly extrapolated here, participants to what Hymes would call a communicative act are necessarily self-observers, and the ethnographer of communication posing as a "super" observer. These acts of observation are always contextualized, another recursion within the consensual domain.

The first order of consensus involves an act of indication or (arbitrary) segmentation of continuous phenomena, and thus, recursively establishes a paradigm. Syntagmatic relations imply multiple-order recursions of observation.

The first major implication for the ethnography of communication is a reiteration of the claim that language studies that artificially deny context, social or biological, explain phenomena at a trivial level. Second, the property of speakers/hearers to be self-observant, in multiple domains, predicts novelty and creativity: the implication that paradigmatic relations imply less recursion than syntagmatic relations

specifies a context for discussions of both uniformity and variability in language behaviour. Third, the role of participant-observer is given a different definition: a multiply recursive descriptive domain employed by the scientific observer requires such a scientist to acknowledge participation in the observed system.

The implications for the components named by Hymes are great. It requires that the ethnographer distinguish between "participant intent" and the component, "goal;" the former term must be ascribed from a more complexly recursive stance to a less complex one. Recursions require increasing precision in the differentiation of participant attributes, from stereotypic to intimate.

Because there are no formal criteria for the boundedness of the component genre, except for the attribution of function, genre becomes a complex of the component, "ends." The "participant intent" apparent in a speech act becomes the apparent manipulation of a property of a consensual domain, and an additional recursion of observation imposes the term, function.

Norms of interaction and norms of interpretation assume an identity. "Key" must be described first in terms of physical acoustics; then segmented; then described in such terms as intonation contour; then, terms that reflect participant interpretation; and finally, realize the "super" observers' claim.

The notion of topic, or message content, requires a temporal accounting for change and perception of change, and becomes paraphrased as "what is going on." The notion thus appears to require an accounting of more other descriptive components than any other.

The notion of perturbation in the closed nervous system provides for a process whereby individuals effect topic change by manipulation in the consensual domain. The descriptive adequacy of these terms is exemplified by Mair's (1977) independent definition of topic in conversation as manipulation of the "state of play" of immediate awareness. He incorporates the notions of "consensus" and "intent" by positing interlocutors' "shared plan," which is realized in synchronous and complementary patterning of intonation contours, along with eye and head movement. The shared plan, tacitly a "projection" in his terms, defines a trajectory. The interlocutor or communicator who controls or is allowed control of that trajectory, controls topic. Mair's definition of "rapport" coincides with Maturana's requirement of recursion in the observational domain: the moment of "rapport" implies a conflation of recursive orders.

The contextualization of descriptive components does not seem to require descriptions which elaborate those components. An imperative for description which it does seem to imply is to

investigate the domains which Maturana and Varela suggest, and to find out if those domains describe more nearly coherently the observed phenomenon of people talking to each other.

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ON CHARACTERIZING COMMUNICATIVE COMPETENCE

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Chomsky's (1965) notion of linguistic competence and associated assertions which define the "ideal speaker-listener, in a completely homogeneous speech community, who knows its language perfectly" (p. 3) as the focus of linguistic theory have been accepted by many theoretical linguists without question. For linguists and others who deal with language in sociocultural settings, however, these particular Chomskyan viewpoints have not proved enlightening. Sociolinguists are impressed from the very outset of their work with the fact of variation in (heterogeneous) speech communities and, as well, with variability in the speech of individuals from situation to situation. If one as a sociolinguist seeks to describe and account for the output of real speakers in actual situations, given the fact of heterogeneity in the speech community, it becomes important to have some standard by which to measure this output or an explanatory descriptive technique with which to deal with it.

Some scholars working in the area have proposed *communicative competence* as the label for those aspects of a person's behaviour which sociolinguists undertake to describe. The use of this single term masks, however, certain significant differences in how it is understood. Jürgen Habermas (1970) uses it in a very abstract and general way, while Dell Hymes (1971) conceives of it as intimately bound to the use of language in real situations. Habermas, Hymes and others have in common the fact that they (either explicitly or implicitly) have taken the situation as the basic unit with respect to which communicative competence is to be defined or in which the communicative competence of speakers is seen to be displayed. Habermas comes closest to Chomsky's idealized notion of competence in his conception of communicative competence. He sees linguistic competence in very much the same way as Chomsky while conceiving of communicative competence as "the mastery of an ideal speech situation" (Habermas 1970:367). Linguistic and communicative competence are for Habermas aspects of a larger "general" competence. The communicative competence of a speaker is, for him, underlain by certain semantic (or pragmatic) universals (termed "dialogue-constitutive universals") which are supposed to characterize the range and nature of possible human interactions. It is unclear from Habermas' brief and fairly non-specific discussion what is to be understood by "ideal speech situation". It seems to be (*mutatis mutandi*) analogous to Chomsky's ideal speaker-listener but its components are not clearly delineated.

A sociolinguist seeking to operate in a real speech community using the Habermas model would be hard pressed to know either how to describe a particular interaction or what aspects to regard as salient. While Habermas does stress the importance of socio-cultural factors in linguistic interaction and does posit the speech situation as the basic unit of description, his model does not offer sufficient detail (in terms of descriptive procedure) to enable one to do sociolinguistics with it alone. The principal flaw (apart from the lack of specifics) would seem to be the degree to which he has idealized the speech situation and thus the scope of sociolinguistics. As Halliday (1978:38) has observed in discussing the Chomskyan competence/performance dichotomy: "If you are interested in linguistic *interaction*, you don't want the high level of idealization that is involved in the notion of competence; you can't use it, because most of the distinctions that are important to you are idealized out of the picture."

What is needed here, then, is not merely a recognition of the crucial role played by sociocultural factors in linguistic interaction (as seen in the speech situation) but some sort of model and/or descriptive technique which is capable of allowing us to talk about what is happening in the whole gamut of speech situations. We need to be able to point to certain universal features which are present in speech situations and which underlyingly determine the nature (and the very existence) of these situations; as well, we need to be able to differentiate among speech situations in terms of these same features. Halliday's (1978) view of "language as social semiotic" takes an important step in this direction. Halliday asserts that there is a variety of "situation types" each of which is associated with a particular "meaning potential" (1978:114). Meaning potential ("the context-specific semantic description of a particular speech situation") is identified with "register." The structure of the situation (and thus the situation type) is characterized in terms of factors such as: the nature of the ongoing activity (field), the role relationships (tenor) and the symbolic or rhetorical channel (mode) (Halliday 1978:110). Another relevant factor in the determination of how a text is constituted is "code", which Halliday uses in the Bernsteinian sense and sees as "symbolic orders of meaning generated by the social system" (1978:111). Code interacts (in the Hallidayan schematic) with the linguistic system and the situation type to produce register. The latter combines with social dialect to produce "text in situation." Text is understood in a semantic sense, rather like message, whereas register implies certain lexical and grammatical characteristics but some semantic ones as well (cf. its equation with "meaning potential").

While considerably more flexible than the abstract, idealized concept of communicative competence advanced by Habermas, Halliday's notion of "language as social semiotic" appears to have some unfortunate (and possibly empirically limiting) drawbacks for one seeking to apply it in the field. There is a degree of fuzziness in that some "surface" linguistic phenomena are said to be the product of the interaction of semantic and other factors but

at the same time are defined as being essentially "semantic." It is difficult to determine, for example, just how to regard register in this model. Generally in sociolinguistics register is a surface phenomenon; it is the kind of speech that is appropriate to some given situation. In Halliday's treatment it becomes suffused with semantic properties (probably because of its close link with code) and is distinguished from text and "text in situation." Bernstein's notion of code, here borrowed by Halliday, is defined as a sociologically conditioned mode of structuring a message, which results from the way one was socialized in a "family role system" (Bernstein 1971). For Bernstein, code is a supralinguistic component of the communication process which is the primary determinant of how meaning is encoded linguistically. Bernstein himself says that codes are not the same as social dialects, that the possession of one or another code is not the inevitable result of the social class into which one is born, and that speakers are not limited to one code in their linguistic repertoire. While he does frequently assert that codes originate in the patterns of socialization of children in different groups, he is at pains to point out that there is not a one-to-one correlation between the social class of a speaker and his or her code.

In my view the attention Bernstein's concept of code has received in the past and on occasion still does receive (as seen in Halliday's work, for example) has obscured a more important contribution of his work, namely, his notion of the nature of the communicative process. Bernstein speaks of three components which constitute this process on a "psychological level": *orientation* (the speaker's reading of the signals in a speech situation), *selection* (the speaker's choosing of appropriate responses from various linguistic and extralinguistic resources) and *organization* (the speaker's production of an integrated response) (1971:131). These elements are aspects of "verbal planning." Different types of verbal planning (i.e., different readings of a speech situation and different responses to it) underlie the different codes. Thus an utterance evidencing "elaborated code" can be said to be underlain by the speaker's perception of a communicative need in the speech situation or on the part of the addressee for a relative explicitness of expression. An utterance in "restricted code," on the other hand, is seen as the reflection of the speaker's perception (for whatever reason) that there is no communicative need for explicitness. There is abundant evidence (not alone from the work of Bernstein and associates) to show that verbal planning (or the speaker's perception of a speech situation) is linked to the context in which he or she was socialized. Recently, Hollos (1977), describing the use and comprehension of Hungarian forms of address by two groups of children, showed that urban children tested exhibited a significantly greater ability to use the address forms in the adult manner than did farm children. The differences in ability to use them (as distinct from passive comprehension, where no significant difference was seen) were attributed to the fact that farm children experienced very little interaction with adults and, in general, had less "varied" sociolinguistic experiences than the

town children. It seems clear, then, that one's perception of the communicative needs in a particular situation is the result of how one defines that situation, the definition of situation being substantially due to one's socialization and, presumably, subsequent experience. In a given interaction, however, it may not be useful to reflect upon a speaker's biography in order to explain the behaviour exhibited. As Erickson and Schultz (1977:9) phrase it, the goal of sociolinguistics may rather be to formulate a model of communicative competence which is "congruent with the ways participants in interaction [construe] interaction as it happens." Consequently, I suggest that for discussions of communicative competence in actual encounters one abandon the notion of code, replacing it with Bernstein's related notion of verbal planning or, as I prefer to term it, *communicative strategy*.

Part of what happens in interaction consists in readings taken by both interactants, readings which (together with the underlying perspectives of the speakers) result in the linguistic and extralinguistic behaviour which occurs. A successful interaction will result, presumably, if each interactant perceives the needs of the other and performs appropriately. Such an interaction is characterized by what is variously termed "a reversibility of perspectives" (Hollos 1977), an "interlacing of perspectives" (Habermas 1970) or a "reciprocity of perspectives" (Cicourel 1972). This ability of one speaker to read another extends to matters of conversational organization (e.g., knowing that a question requires an answer) and to deeper phenomena, such as perceiving that one's interlocutor may not share certain background knowledge and thus may require a more explicitly stated message. A perception, then, that an unknown other might be as well an *unknowledgeable* other could appropriately result in -- to use Garfinkel's (1967) terminology -- a diminished number of "indexical" as against "objective" utterances.

Indexical utterances (or context-bound expressions) are what characterize instances of restricted code, or are the products of implicit communicative strategies. Whatever one's pattern of socialization may have been, he or she is likely to possess the ability to express messages in more or less explicit ways. A less explicit (in the extreme case, ultimately, an implicit) communicative strategy will be evidenced linguistically by a higher percentage of pronouns (especially those exhibiting exophoric rather than endophoric reference), the presence of (unexplained) specialized vocabulary and, possibly, a greater occurrence of elliptical utterances. Extralinguistically (or, perhaps better, paralinguistically) there may be more instances of what Kernan (1977) terms "expressive elaboration" (including stress, gestures and miscellaneous nonlinguistic noises). Given the range of communicative strategies implied here, one can expect a competent speaker to perform differently as features of the speech situation dictate and, by further implication, can expect to discover in the speech community instances of what Hymes (1971) terms "differential communicative competence."

A sociolinguist seeking to come to terms with what might be meant by the notion "communicative competence" may do so on two levels, those of the individual speaker (or of the communicative dyad) and of the larger speech community. Halliday's model in many respects offers a plausible characterization of communicative competence on the "macro" level, that of the overall speech community. Even with the amendments suggested above (relating mainly to the manner in which code and similar concepts are treated), it seems to be still too deterministic to allow for an objective description of a variety of speech situations. On the "micro" level, that of specific individual encounters, there is a more heuristic descriptive technique available: I refer here to the "ethnography of communication" associated with Gumperz and Hymes. To be sure, it is possible to equate many of Hymes's components of speaking with certain of Halliday's components and, indeed, Halliday has done just this (1978:63). Hymes's approach may, however, seem more acceptable to some, especially in that it presupposes less in the way of causative relationships among components of speech situations and is probably more open to novel situations. It is possible to infer from Halliday, in fact, that there may be a finite (and perhaps quite small) number of situation types. Additionally, in his use of broad terms such as field, tenor and mode, Halliday seems to mask distinctions which are explicitly apparent in Hymes's components. In short, the larger number of components and the lack of encumbering assumptions about hierarchical relationships among them cause me to prefer the Hymesian "model" of the speech situation as the basis for my own conception of what happens in linguistic interaction and what to look for in describing particular interactions. The vagueness of Hymes's notions of the purposes and outcomes (his "Ends") of speech situations/events may be overcome by the addition here of Halliday's functions, which find no parallel elsewhere in sociolinguistics.

A further improvement can be made in the Hymesian algorithm by the judicious inclusion of the notion of hierarchy (though not in the Hallidayan sense) and by some reference to concepts such as communicative perception and strategy. The problem of the lack of hierarchy here may, indeed, be little more than an artifact of Hymes's decision to group his components under the mnemonic SPEAKING: an apparent equivalence among the components may simply be owing to the fact that each receives a letter in the mnemonic. In the various treatments of these by Hymes, Ervin-Tripp (1964) and Gumperz (1967), it is in the latter's work that one finds them grouped hierarchically in an attempt to show how they interrelate in the process of communication. In a schematic, Gumperz showed a device for encoding and decoding messages; it contained many of the same components as Hymes's SPEAKING but with one labelled "behavioural norms and content" at its core. We might consider this central component (which we at best infer by observing and describing the more peripheral aspects of the communicative process) to be the one which allows a speaker to become involved in a communicative process in the first place and which causes one to react to signals in the situation in appropriate linguistic and extralinguistic

guistic ways. This component would include communicative perception and communicative strategy. The signals in the situation to which one reacts would be analogous to (though not identical with) Gumperz' (1976) contextualization cues.

I come now to what I consider to be the crux of the problem I have been discussing. Habermas sees communicative competence as "the mastery of an ideal speech situation"; Hymes, in terms of the speaker's incumbency in some social role (1972); and Halliday (were he to use the term at all), with respect to a host of linguistic and social factors. From these three viewpoints we can assemble (1) from Habermas, the locus of communicative competence (the speech situation), (2) from Hymes, many components of the dynamics of communicative competence and (3) from Halliday, details both of the dynamics (especially functional aspects) and the sociological basis of communicative competence. What I believe to be central to the whole process is the notion of communicative strategy, which has, in my view, unfortunately been masked under the somewhat controversial label of code. As I indicated above, I would propose a continuum of communicative strategies arrayed along a dimension of relative explicitness. This explicitness would be reflected in the linguistic text in ways such as those mentioned above. The choice of a particular strategy would (in the simplest instances, at least) be based upon a speaker's perception of the communicative need of an interlocutor or, in other words, would be the result of an assessment of shared knowledge between the two. This process of assessment (analogous perhaps in some respects to Sacks's [1972] membership categorization device) could lead to inappropriate (or, inadequately communicative) behaviour if signals were incorrectly interpreted or if there existed differential communicative competence (Hymes 1971), as in the case of adult-child interaction (Southerland 1979).

It is unreasonable to suppose that a behaviour as complex as the process of communication can be characterized fully on the basis alone of the notions discussed here. Residual problems include what Hymes has termed a "psycho-physical component," having to do with the physical production of language and attendant mental processes. Additionally, problems can arise with respect to the interpretation of the intentions and motivations of speakers in particular interactions. For purposes of the present discussion, however, I have assumed total altruism on the part of interactants.

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PRAGMATIC INFLUENCES ON ENGLISH WRITTEN DISCOURSE

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The purpose of this paper is to discuss some of the ways in which the pragmatic communication situation influences the grammatical and lexical form of written English discourse. After briefly describing certain features of the general communication situation of written discourse, I discuss how this situation affects a specific written English text in two areas: the form of first mention references, and the use of technical terminology. I conclude by suggesting some applications of this type of analysis to philological disciplines.

1 The Communication Situation of Written Discourse

The communication situation of written discourse differs from other types of verbal communication in several ways. The aspects of written communication which are relevant to this study are that written discourses are normally not composed in a face-to-face situation and do not involve immediate turn-taking between participants. That is, an author most often constructs a written discourse in a pragmatic vacuum, to the extent that his reader is not present during the composition of the work, and, in the case of a published text, he does not personally know who his reading audience will be. As a result of this situation, an author, in writing a discourse, must make sweeping assumptions regarding his reader's knowledge of the general topic of his discourse. In this paper I will examine the effects of such assumptions on the form of an English discourse.

Although a published written discourse has a potential audience of anyone who can read, 'in fact, a book is addressed to only a section of the public and reaches its appropriate readers through media that are themselves submitted to social rules of exclusion and admission' (Ricoeur 1976:31). Said in another way, an author determines the type of reader to whom he wishes to write, especially deciding how much that reader should know about the subject matter of his discourse. Having determined this, the author then uses various social means such as particular publishers, or a particular journal or series of books, as well as linguistic means such as a title, abstract, and opening paragraph to route his work to the reader for whom it is intended.

The speaker's or hearer's knowledge, admittedly a broad area of study, has a theoretical place in linguistics in Pike and

Pike's tagmemic REFERENTIAL MODE (1977:363).¹ An important insight into the organization of human knowledge is found in the Pikes' comparison of the referential mode with an encyclopedia. The Pikes (1977:384) suggested that referential mode resembles an encyclopedia in that it contains knowledge of particular items, such as *John-Paul II*, or *the Statue of Liberty*. A lexicon, on the other hand, contains general definitions of words, such as *car* meaning a motorized vehicle, with four wheels, etc.

I propose that a large part of a person's knowledge can be profitably seen as having an encyclopedic organization, in terms of a series of ENTRIES representing the various subject areas about which a person has knowledge. The information under each entry would include the actions, participants, props, concepts, etc. which are customarily associated with that particular subject area. Such an encyclopedia would be enormously complex in its entirety, with numerous cross-references to other entries in the encyclopedia and many subentries within each larger entry, each having its own customary participants, props, actions, cross-references, and further subentries. For example, for a modern American, a possible encyclopedia entry could be Transportation, under which various modes of transportation would be entered such as airplanes, cars, trains, etc. Characteristic actions would be associated with each mode of transportation, e.g. how to buy a ticket to travel on an airplane, etc. Characteristic props and participants such as travel agents, pilots and stewardesses, in-flight meals and magazines, would also be listed under their appropriate subentry. The in-flight meal would be cross-referenced to a food or eating entry.²

Although other types of knowledge such as what Bayless and Johnson (1975:5-6) call 'cultural' and 'human presuppositions' are not in primary focus in this paper, such knowledge distinctions--what a person knows simply as a result of being human and living on earth, and what he knows because he participates in a given culture--are also part of the referential mode, as internalized pragmatic factors which affect the form of discourse. When such types of knowledge affect the analysis in this paper, I will note them explicitly.

Besides the general storehouse of more or less PERMANENT encyclopedic knowledge which a person has, the referential mode also includes TEMPORARY information concerning the specific text³ an author is speaking or writing.⁴ This information, although not organized encyclopedically, i.e. in terms of entries, is particularly relevant to the communication situation of written discourse in that at any given point after a discourse has begun, an author assumes that information he has communicated earlier in the discourse is stored in the reader's referential mode as temporary knowledge. Van Dijk (1974:17a) discussed the notion of an expanding bank of temporary information as a 'dynamic' model of text description, in which 'preceding sentences ... construct or

reconstruct the worlds in which the following sentences are satisfiable'.

By representing aspects of a person's knowledge in terms of a referential encyclopedia one gains insight into the unique problems of the pragmatic situation of written discourse. In the process of choosing a topic to write about, an author consciously or unconsciously decides how much knowledge he will expect his reader to have about that topic. This decision amounts to making an assumption regarding the complexity and completeness of the relevant entry in the reader's encyclopedia. The author may assume his reader's relevant entry is essentially equivalent to his own, except for a few minor points, as would an author writing an article for a professional journal. On the other hand, he may assume that his reader's entry is much less complete than his own entry for the same subject, as in a car repair manual written for beginners, or a school child's history textbook. In any case, the author's assumption regarding his reader's relevant encyclopedia entry affects several aspects of the resulting text. In the following sections I discuss how first mention references and the use of technical terms in an English text reflect an author's assumptions regarding the intended reader's relevant encyclopedia entry.

The text used as data for the following analysis is an excerpt from the official publication of the National Association of Amateur Oarsmen. The magazine has a circulation of about 5000, most subscribers being members of the Association. The text is found in Example 1, next page. I have numbered the sentences in the text consecutively.

2 First Mention References

In this section I discuss the influence of the communication situation on first mention references in an English text. In recent years many linguists have noted that the form in which an item is initially mentioned in a conversation or discourse, e.g. with a definite or indefinite article, reflects the speaker's assumption regarding the status of that item in the hearer's knowledge, e.g. whether it is new or old information to the hearer. Chafe associated the use of English definite article with the concept of old information (1970). He suggested that definite nouns, in which the speaker assumes the hearer knows the identity of an item, and generic nouns, in which an item is referred to as a class, both are consistent with the notion of old information (1970:214). A nondefinite nongeneric noun, on the other hand, implies that the speaker does not expect the hearer to know which item is being talked about. Similarly, van Dijk (1972:46) suggested that a noun phrase would be assigned the feature + DEF if that noun phrase represented a semantic structure having the same reference in the same modal domain as the semantic structure of a noun phrase in a preceding sentence of the discourse. Otherwise

EXAMPLE 1

(Text Source: Warner, Anne. 1978. Women's World Championships. The Oarsman 10.6.12-16. Used by permission of the publisher.)

Finals

1. The 1978 women's four will go down in history as silver medalists, but the story of their success should go with them. 2. The weather was very rough for the women's final, and as the six crews came to the line, it became clear that the start would take a long time. 3. A gully between two hills on shore at the 1000 meter mark increased the wind, and caused waves to break over gunwales. 4. Even a new system of "pop-up" buoys (small white buoys that the bow person grabs to hold the boat straight and which disappear at the starter's command) failed to help. 5. Watching from the competitor's lounge, everyone knew that muscles must be getting cold and stiff.

6. The USA got off to a slow start, well behind the field. 7. Because of the wind, the starter did not poll the lanes, and the American crew was caught turning. 8. At the 500, the Easties and the Russians were battling it out for first and the USA was sixth. 9. Suddenly, a bell sounded and the race stopped. 10. A Russian woman had jumped her slide and the Soviet boat had blown over into the Canadians' lane and hit oars. 11. The Canadian three woman threw up a hand in protest and the Russians limped off the water, disqualified. 12. Races were postponed for one and one-half hours.

13. As John Hooten put it when the four approached the dock, "Someone up there loves us!" 14. Not only had one of the top boats been removed, but the USA got a second chance at the start.

15. The wind was just as bad the second time, and the four still had lane 5--distinctly rougher than lanes 1 or 2. 16. This time they had a decent, although not brilliant start. 17. At the 500 the East Germans were well out in front, and the USA was in third behind Romania. 18. With their notorious sprint, they pulled it past the contenders and came across the line second behind East Germany. 19. For the rookie, Coz Crawford, her first international medal; for Anita DeFrantz and Nancy Storrs, their second; and for Carol Brown, her third!

the noun phrase would be assigned the feature - DEF. Van Dijk (1972:48) discussed first mention uses of the definite article as a counterexample to this initial formulation and proposed a 'pragmatic theory' as a partial solution to this difficulty. In some cases of the definite article in first mention references the 'speaker of the utterance assumes that hearer of the utterance knows which object is referred to by the terms of the utterance'. Linde (1974) analyzed first mention uses of definite articles, using a series of descriptions of apartments as data. She noted (1974:4) that rooms which were expected to be in apartments, such as kitchens and living rooms, were initially referred to with definite articles, while minor rooms such as a foyer or study were first mentioned with indefinite articles, indicating the hearer was not assumed to expect that the apartment had such minor rooms. The definite articles referred to information shared by the speaker and hearer, while indefinite articles tended to be used to initially refer to information which the speaker assumed was unfamiliar to the hearer. Finally Hawkins (1978) discussed first mention uses of definite and indefinite articles in English, and suggested (1978:120) that definite articles used in first mention reference meant that the speaker expected the hearer to be able to 'locate' the referent in some situation, be it an immediate situation, or in his knowledge of a more general situation. On the other hand the indefinite article used in initial references identifies an item which might or might not be locatable in the hearer's knowledge (1978:175), depending on the context and the particular sentence. I believe each of these authors was on the right track in associating the use of English definite and indefinite articles with something like old-new information structure. In the following discussion I draw heavily on their work, particularly Hawkins', although I use somewhat different terminology. I expand on their work by discussing the pragmatic implications of modifiers and personal pronouns in first mention references, and relating all these findings to an encyclopedia model of the reader's knowledge.

2.1 Definite and Indefinite Articles

A crucial claim in this paper is that items which occur in first mention references in a written discourse reflect the author's assumptions regarding the knowledge of his reader, that is, regarding the complexity and completeness of the relevant entry of the reader's encyclopedia. Definite and indefinite articles occurring in first mention references are key examples supporting this claim.

Hawkins (1978:168) presented certain appropriateness conditions which had to be satisfied in order for a definite article to be used felicitously in English. These conditions center around two basic concepts--location and inclusiveness. For a definite article to be used appropriately in a first mention reference in English, the speaker must assume that the hearer is able to locate

the referent within a specific domain, and that no other items exist in that domain which satisfy the description of the reference. For example, in sentence 3 of Example 1, *the 1000 meter mark* is a first mention reference to an item marking 1000 meters distance from the beginning of the rowing course. The use of the definite article indicates that the author assumed that such an item was listed as a feature of rowing courses under the Rowing entry of the reader's encyclopedia. There is also the apparent assumption that the reader's Rowing entry listed only one such item as appropriate for a rowing course. Thus, I interpret the use of a definite article in a first mention reference in a written text as implying that the author assumed that the reader already listed such a referent under the relevant encyclopedia entry, and that there were no other items matching the description of the referent in that entry.

The use of the definite article in English is the same regardless of whether the referent is listed in the temporary or permanent section of the reader's referential mode. In written discourse, *the* indicates only that the referent(s) should be locatable in the reader's referential mode under some domain. Thus in sentence 2 *the weather* refers to an item in the reader's permanent encyclopedia, as a presumed factor of life on earth, a human presupposition. *The USA* (meaning the USA boat) in sentence 6 refers to an item in the temporary section of the reader's referential mode, having been introduced there earlier in the discourse.

Hawkins (1978:187) also presented appropriateness conditions for the felicitous use of indefinite articles in English. These conditions center on the notions of nonlocatability and exclusiveness. For an indefinite article to be used appropriately in a first mention reference, the speaker must assume that his hearer does not list the item in question in the relevant entry of his encyclopedia (and thus cannot locate it) or that there is more than one item or group of items in the entry which satisfy the description of the indefinite reference in question. Thus, in sentence 9, *a bell* introduces an item which the author assumed was not listed in the reader's encyclopedia under the Rowing entry. The reader was not assumed to expect that bells were used to stop rowing races before the finish. In sentence 11 *a hand* refers to an item in the reader's encyclopedia as a common part of human anatomy (a human presupposition), but implies there is more than one item in the encyclopedia which satisfied this description. In other words, the author assumed that the reader listed as a human presupposition that humans normally have two hands. She thus used a phrase with an indefinite article to refer to one of them. The use of an indefinite article in a written text, in sum, implies that the author assumed either that the reader did not list the referent in his encyclopedia, or that the relevant encyclopedic entry included more than one such item.

Phrases with plural nouns are included in the above analysis with the following qualification. While the definite article may occur with both singular and plural nouns, the indefinite article may only occur with singular nouns. References to plural nouns which parallel the use of the indefinite article with singular nouns normally occur either without any article or with *some* as an indefinite plural marker.

This analysis of definite and indefinite articles in English is useful in deducing what information the author presumed his reader listed under a relevant entry of his encyclopedia, and which items he presumed the reader's encyclopedia did not list under any relevant entry. In the text in Example 1, the following items occurring with *the* were presumed to be in the reader's Rowing entry: *the line* (sentence 2), *the start* (2),⁵ *the 1000 meter mark* (3), *the bow person* (4), *the starter's command* (4), *the competitor's lounge* (5), *the lanes* (7), *the starter* (7), *the 500* (8), *the Canadians' lane* (10),⁶ *the water* (11), *the dock* (13), *the line* (18), and *the rookie* (19). Two items occurred with *the* in first mention references which were assumed by the author to be human presuppositions: *the weather* (sentence 2) and *the wind* (3). One item mentioned with *the* was presumed to be listed in the temporary section of the reader's referential mode, having been introduced earlier by association, *the Canadian three woman* (11). In this case the Canadians as a group were introduced earlier in the discourse, and thus were presumed to be in the temporary section of the reader's referential mode. This phrase refers to a specific member of that group.

Certain items presumed to be listed in the reader's encyclopedia were introduced with *a*, indicating that the author expected the reader to list more than one such item under the relevant entry. Such items in Example 1 occurring with *a* or its plural equivalent which were presumed to be in the Rowing entry of the reader's encyclopedia are: *silver medalists* (1), *waves* (3), *gun-wales* (3), *a slow start* (6), *oars* (10), and *a decent, although not brilliant start* (16). Items in Example 1 presumed to be in the reader's encyclopedia as human presuppositions are: *a long time* (2), *muscles* (5), *a hand* (11), and *one and one-half hours* (12). Body parts and some awareness of time are presumably experienced by all humans and can thus be treated as known information. *A Russian woman* (10) was assumed to be present in the temporary section of the reader's referential mode, in that the Russians were introduced as a group earlier in the discourse.

Certain items were presumed not to be listed in the reader's encyclopedia under any relevant entry. These items, which occurred with *a* or its equivalent, are: *a gully* (3), *two hills* (3), *a new system of "pop-up" buoys* (4), *small white buoys* (4), *a bell* (9), and *a second chance* (14).

2.2 Modifiers

First mention references in a text may include not only definite or indefinite articles, but also modifiers such as adjectives or relative clauses. The use of modifiers, particularly relative clauses, has been traditionally analyzed in terms of two functions, restrictive and nonrestrictive.⁷

This discussion focuses primarily on the restrictive use of modifiers, in that it is this use of modifiers in first mention references which reflects the author's assumptions regarding knowledge of his intended reader. The restrictive use of a modifier indicates that the author of a text assumed that the reader listed several items of the same type within a relevant entry of his encyclopedia. The author uses a modifier restrictively to improve the identification of a particular item by mentioning a feature which distinguishes it from other items of the same type. When a restrictive modifier occurs with a definite noun phrase, the referent is contrasted with all other items of the same type in the reader's entry. If the restrictive modifier occurs with an indefinite noun phrase, the item is contrasted with some items of the same type in the entry, but remains uncontrasted with the specific subset of those items which fit the description of the particular indefinite noun phrase. Thus I suggest that the use of a restrictive modifier in an indefinite noun phrase not only implies that the reader's encyclopedia entry was assumed to list several items of the same type, it also implies that these items were to be arranged in the entry according to certain groupings.

For example, in the noun phrase *the 1000 meter mark* (3), the modifier *1000* is used restrictively to distinguish this particular meter mark from others assumed to be listed in the reader's Rowing entry, e.g. *the 500 [meter mark]* (8). The modifier *silver* is used restrictively in the indefinite noun phrase *silver medalists* (1). In this example, the modifier *silver* distinguishes the referents from other medalists assumed to be listed in the reader's encyclopedia entry, such as gold and bronze medalists. The use of *silver* in an indefinite noun phrase also indicates that the reader was assumed to have silver medalists other than the referents in his Rowing entry. In other words, the author assumed the reader knew that there were many silver medalists in any given rowing regatta, one or more for each event.

In sum, the use of a restrictive modifier in first mention references implies that the author assumed that the reader's encyclopedia entry listed several items of the same type as the referent, and indicates some of the contrastive features of those items. The use of a restrictive modifier in first mention indefinite noun phrases further implies that such items were assumed to be organized into subgroups in the entry.

The following first mention expressions in Example 1 contain

restrictive modifiers: *silver medalists* (1), *a long time* (2), *the 1000 meter mark* (3), *the starter's command* (4), *the competitor's lounge* (5), *a slow start* (6), *a Russian woman* (10), *the Canadians' lane* (10),⁸ *the Canadian three woman* (11), *a second chance* (14), *a decent, although not brilliant start* (16), *her first international medal* (19), *their second* (19), and *her third* (19).

The following expressions are first mention references containing nonrestrictive modifiers: *two hills* (3), *a new system of "pop-up" buoys* (4), *small white buoys* (4), and *their notorious sprint* (18).

2.3 Possessive Pronouns

Besides definite and indefinite articles, and various types of modifiers, first mention references in an English text may contain possessive pronouns. The function of possessive pronouns in first mention references combines the functions of definite articles and modifiers. The use of possessive pronouns indicates that the author assumed the item in question was entered in the reader's encyclopedia, resembling the function of definite articles. Also possessive pronouns give information concerning the item that is either restrictive or nonrestrictive, resembling the function of modifiers. Thus, the pragmatic implications of the use of a possessive pronoun are essentially a combination of the implications of the use of the definite article and the modifier. Specifically, a possessive pronoun in a first mention reference indicates that the referent was assumed to be listed in the reader's encyclopedia under a relevant entry, and if restrictive, indicates some of the contrastive features of the various similar items assumed to be in that entry of the reader's encyclopedia. Thus, in Example 1, *her slide* (10) introduces an item in the text which the author assumed was listed in the Rowing entry of the reader's encyclopedia. The restrictive use of *her* further indicates that the author assumed there were several slides listed in the reader's encyclopedia entry and that they could be distinguished from one another on the basis of unique access or usage.

All of the following first mention references from Example 1 use possessive pronouns restrictively: *her slide* (10), *their notorious sprint* (18), *her first international medal* (19), *their second* (19), and *her third* (19).

2.4 Summary

In summary, the author of Example 1 made certain assumptions regarding the contents of the reader's Rowing entry in his encyclopedia. First of all, the author presumed that the reader knew that certain items were customarily present at a rowing race--these items are entered in the reader's Rowing entry. Such individual items included a starting line, a finishing line, a dock, a starter, and a competitor's lounge. The reader was also to have

known about several groups of items normally present in the sport of rowing, or specifically in rowing races. These groups of items included meter marks, distinguished by their distance from the starting line; lanes, distinguished in the text by who rowed in them; various persons manning rowing boats, distinguished by a technical name given to each; medals and medalists, distinguished by the metallic composition of the medal; and specific parts of a rowing boat, some distinguished by which person manning the boat used them.

Also several events which customarily occurred at rowing races were assumed to be listed in the reader's Rowing entry, such as the starter's command, starts (which could be either fast or slow), and finishing sprints.

The author of the text in Example 1 assumed the Rowing entry of the reader's permanent encyclopedia was quite complex, based on the evidence of first mention references in the text. This conclusion is in line with our knowledge of the general reading audience of the magazine in which the text in Example 1 appears.

3 Technical Terms

A basic presupposition an author makes in writing a text is that the reader shares a large amount of vocabulary with him. Otherwise much of a discourse would be taken up defining terms or using long circumlocutions to avoid unknown terminology. Thus the use of undefined technical words or expressions, whose relevant senses are used only by a small portion of the total language community, is a significant indicator of an author's presumptions regarding his reader's knowledge.

In Example 1, several technical terms are used for items peculiar to the sport of rowing. These include the technical name for a type of racing boat, i.e. the use of *four* to refer to a racing boat manned by four persons, each wielding one oar, as in *the 1978 women's four* (sentence 1). The reader was also assumed to know the technical names for various persons manning a racing boat, e.g. *the bow person* (4) and *the Canadian three woman* (11). Further, the author assumed the reader knew the various parts of a rowing boat, as in *gunwales* (3) and *her slide* (10).

The author also used two technical expressions in the text: *poll the lanes* (7), meaning to check to be sure all the contestants were prepared to start the race, and *jump one's slide* (10), referring to a fairly common mishap in rowing, particularly in races.

One technical expression used in the text--"*pop-up*" buoys (4)--is defined, indicating that the author assumed his reader would not know what the expression meant.

In summary, I draw together the assumptions which the author of Example 1 made concerning his reader's knowledge, particularly in terms of technical terminology. The reader of the text in Example 1 was assumed to have a linguistic familiarity with the sport of rowing, knowing the appropriate technical names of types and parts of rowing boats, and the appropriate terms used to refer to persons manning a rowing boat. The reader was also to have had some familiarity with rowing races including how they started and the types of problems which can happen in them. As I mentioned above, the author did not assume that the reader was aware of the name or nature of certain pieces of equipment which were new to the sport, and thus not an expected part of a rowing race, e.g. "*pop-up*" buoys.

Thus the author's use of technical terminology in Example 1 indicates that he wrote to a reader familiar with the sport of rowing, and this conclusion is confirmed by our outside knowledge of his intended reader.

4 Conclusion

The immediate conclusion of this analysis--that the author of Example 1 assumed that the reader of the text knew much about the sport of rowing--is in a sense trivial, in that we know from outside sources that the intended audience of this text did know much about the sport of rowing. However, I believe the implications of this analysis for the study of texts are not trivial. The discipline of philology has long been interested in the study of texts. In the case of ancient and medieval philology, often very little is known of the communicative situation of a given text. The fact that the results of this analysis parallel what we already know about the communication situation of the text in Example 1 indicates that the basic procedures and principles used in this analysis are sound. After some refinement, these principles, that is, the analysis of first mention references and technical terminology, could be used with profit in the study of texts whose communication situation is unknown to the analyst, enabling him to reconstruct, so to speak, the type of audience to whom a given text was written.

Notes

¹The Pikes refer to this concept as 'the referential hierarchy'. Since the aspects of reference relevant to this paper are not obviously hierarchical, I am referring to the referential part of language as the 'referential mode' to avoid confusion.

²Schank and Abelson (1977:41) introduced the notion of 'script'

as a 'predetermined, stereotyped sequence of actions that defines a well-known situation'. As such, scripts certainly seem to be a part of the encyclopedia section of the referential mode. Linda Jones (1977:118) made use of the notion of script in discussing the referential structure of theme in English expository discourse. Van Dijk (1977:135) proposed the notion of a 'frame' as a 'subsystem of knowledge about some phenomenon in the world'. Van Dijk's concept of frame seems close to what I have called an 'entry' in this paper.

³Pike and Pike (1977:371) have examined the referential structure of the specific content of a Mixtec story.

⁴Similarly Hinds (1979:321) mentions the notion of a 'discourse registry', which is divided into temporary and permanent sections.

⁵Note that in addition to items, events such as *the start* (2) can be referred to as information the author presumed the reader to know by means of nominalization and the use of *the*.

⁶This example presents some complexities which will be discussed in detail in Section 2.2.

⁷For examples of analyses using the notions of restrictive and nonrestrictive functions, see van Dijk (1972:57) and Givón (1974:17). Hawkins (1978:130) uses the term 'establishing' relative clause in a way similar to others' uses of the term 'restrictive'.

⁸These expressions refer to items in both the temporary and permanent encyclopedic sections of the reader's referential mode. *Silver medalists* refers to items in the permanent encyclopedia section of the reader's referential mode; *a Russian woman* refers to an item in the temporary section; *the Canadians' lane* contains a mixture of information from the temporary and the permanent sections of the reader's referential mode. The Canadianness of the lane is temporary knowledge, but the presence of the lane itself is permanent knowledge.

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